The Influence of Decisional Cohesion and Framing on the

Persuasiveness of Expert Group Recommendations

by

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ABSTRACT

Recommendations made by expert groups are pervasive throughout various life domains. Yet not all recommendations—or expert groups—are equally persuasive. This research aims to identify factors that influence the persuasiveness of recommendations. More specifically, this study examined the effects of *decisional cohesion* (the amount of agreement among the experts in support of the recommendation), *framing* (whether the message is framed as a loss or gain), and the *domain* of the recommendation (health vs. financial) on the persuasiveness of the recommendation. The participants consisted of 1,981 undergraduates from Arizona State University. The participants read a vignette including information about the expert group making a recommendation—which varied the amount of expert agreement for the recommendation—and the recommendation, which was framed as either a gain or loss. Participants then responded to questions about the persuasiveness of the recommendation. In this study, there was a linear main effect of decisional cohesion such that the greater the decisional cohesion of the expert group the more persuasive their recommendation. In addition, there was a main effect of domain such that the health recommendation was more persuasive than the financial recommendation. Contrary to predictions, there was no observed interaction between the amount of decisional cohesion and the framing of the recommendation nor was there a main effect of framing. Further analyses show support for a mediation effect indicating that high levels of decisional cohesion increased the perceived entitativity of the expert group—the degree to which the group was perceived as a unified, cohesive

group—which increased the recommendation's persuasiveness. An implication of this research is that policy makers could increase the persuasiveness of their recommendations by promoting recommendations that are unanimously supported by their experts or at least show higher levels of decisional cohesion.

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Each year countless recommendations are made to the general public by expert groups. For example, the Centers for Disease Control and Prevention (CDC) is an organization of health experts who work toward promoting health and preventing disease (CDC, 2012). As part of their mission, in 2011 they made numerous recommendations regarding health and wellness, including recommending getting a flu vaccine each year as the "first and most important step in protecting against flu viruses" (CDC, 2011). As another example, the American Cancer Society is governed by a board of directors who vote on recommendations and policies they endorse based on information gathered from experts (American Cancer Society, 2012a). They have been active in making recommendations regarding the prevention of skin cancer including recommending "sun safe behaviors" such as limiting the amount of time spent in the sun, wearing protective clothing, and wearing a sunscreen with a sun protection factor of fifteen or higher (American Cancer Society, 2012b).

Although the health domain offers many examples, other domains of life also come with their own set of expert recommendations. Each year, the Insurance Institute for Highway Safety and the Highway Loss Data Institute jointly announce their "Top Safety Picks" based on a number of crash tests and evaluations of safety restraints (Insurance Institute for Highway Safety & Highway Loss Data Institute, 2012). The National Highway Traffic Safety Administration makes recommendations regarding car seats and booster seats for young children (NHTSA, 2011). In the controversial debate regarding global warming, 97 of the top 100 climate researchers—who are undoubtedly experts on

global warming—explicitly agree with or endorse the Intergovernmental Panel on

Climate Change's assessment of global warming including their recommendations

(EurekAlert!, 2010). Furthermore, a listing of recommendations would be

incomplete without mentioning the countless iterations of the classic sugarless

gum commercial which states, "sugarless gum is recommended by four out of five

dentists . . ."

These are all examples of recommendations made by expert groups and

organizations who have reviewed products and practices relevant to their area of

expertise. These recommendations encompass nearly every aspect of life: health,

diet, exercise, the products we buy, safety for our children and ourselves,

politically driven issues, how much sleep we should get, and so on.

Recommendations of this sort are pervasive and beneficial to the recipient. They

offer recipients valuable information regarding "best" practices. If you want to

know what the safest car is, who better to ask than a group of safety experts? If

you want to know whether to get a flu shot, who is a better source on the subject

than the CDC? Expert group recommendations provide a quick way for people to

receive valuable information.

Recommendations are also a unique source compared to other ways of

receiving information. They provide a conclusion regarding a "best" option often

without making lengthy arguments or delving into potentially highly technical and

complicated information. Instead, recipients infer the reasonableness of the

recommendation based primarily on their understanding of the source of the

recommendation and the minimal information which is contained in the actual

recommendation. Since recommendations provide limited information, they present an interesting context in which to examine decision making in the absence of content rich information and persuasive arguments—as are frequently studied in the literature. They are also prime candidates for study because of the serious content of many of the recommendations, their ripeness for multiple heuristic cues, and naturally arising framing issues.

One important nuance of a recommendation is whether it includes information about the degree to which experts agree on the recommendation. For example, the gum commercial states, "sugarless gum is recommended by four out of five dentists." Likewise, in the provided climate change example, 97 out of 100 experts agreed. In each of these, information about the amount of agreement, or support for, the recommendation is provided. Although in these examples the amount of agreement is fairly high, it is also conceivable that a recommendation might be made even if there is barely a majority of experts, such as six out of ten, who agree. The differences in the amount of expert agreement, what I will refer to as *decisional cohesion*, could have important implications for the persuasiveness of a recommendation yet little, if any, research has examined its effect.

The framing of the message is another nuance commonly varied in recommendations. Like any message, recommendations can be framed in a way that focuses on the benefits of following the recommendation or on the negative outcomes of not following the recommendation. For example, the CDC in its recommendation chose to focus on the potential loss and stated that the flu shot

was useful in "protecting against flu viruses." Here the emphasis is on the negative outcome associated with not following the recommendation: getting the flu. The same message could be framed as a means of "encouraging health." In this instance, the message is focused on the positive outcome of staying healthy if you obtain the flu shot. Research has shown that differences in framing impact how people think about risks and how they respond to a message (i.e., Kahneman & Tversky, 1979; 1982; 1984). By examining the interaction of decisional cohesion and framing, which has a demonstrated influence specifically on the persuasiveness of recommendations (e.g., Detweiler, Bedell, Salovey, Pronin, & Rothman, 1999; Gerend & Cullen, 2008; Hevey, Pertl, Thomas, Maher, Craig, & Chuinneagain, 2010; McCall & Martin Ginis, 2004; Updegraff, Emanuel, Gallagher, & Steinman, 2011), we can provide a more nuanced understanding of the influence of heuristics on a recommendation's persuasiveness.

This study examines the effects of decisional cohesion, framing, and their interaction on the persuasiveness of recommendations in multiple domains. In the literature review, I will discuss three relevant areas of literature that help elucidate how recipients might be influenced by these types of recommendations. First, I will discuss the "expert" heuristic and how expert groups generally influence the persuasiveness of recommendations. Second, I will discuss the theorized influence of decisional cohesion and briefly review the literature on the influence of social consensus and the literature on entitativity and persuasion to support my predictions. Third, I will review the framing literature and discuss implications for the way this may interact with decisional cohesion. Following a review of the

literature, I will describe my thesis study examining the influence of the degree of

decisional cohesion among the expert group making a recommendation and the

framing of the recommendation on its persuasiveness in two domains. In

conclusion, I will discuss the results of this study in relation to specific

hypotheses as well as report the results of some exploratory analyses, limitations

of the study, potential future directions of research, and the implications of this

study for public policy.

THE "EXPERT" HEURISTIC

Experts function largely as credible authorities, and as Cialdini (2009) put it, authority is one of the top six "weapons of influence." Some even argue that the effects of obedience observed in the classic Milgram Study resulted not only from the perceived legitimacy of the authority, but also from the authority derived from the perceived expertise of the experimenter (Cialdini & Goldstein, 2004). Authorities and experts are strong, often overlapping figures of influence. Thus it is only necessary to evoke symbols of authority, such as the title 'Doctor' or a well tailored business suit, to influence an individual (Cialdini & Trost, 1998). Additionally, a review of the literature surmised that those high in expertise are more persuasive than low-expertise sources and that high expertise elicited more change in attitudes and had a stronger influence on behavioral compliance (Pornpitakpan, 2004).

There is evidence that the perceived expertise of the message deliverer functions as an "expert" heuristic influencing the perceptions of the message. For example, when a message was delivered by an expert source, rather than an attractive source, participants used more heuristic based processing of the message (DeBono & Harnish, 1988). Heuristics, or mental short-cuts based on simple hard-and-fast rules, allow the recipient to use generalized knowledge from past experiences, observations, and intuitions to form attitudes rather than relying on a content based analysis of the issue. According to research, there is a collective presumption that expert statements are inherently valid which is what creates the "expert" heuristic (Bohner, Ruder, & Erb, 2002). Thus, statements

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from experts are perceived as more valid and are consequently more persuasive. The perceived expertise of the source can be even more influential than the strength of the presented arguments. One study found that when personal relevance was low and participants were using heuristic processing, attitudes were influenced primarily by the expertise of the source rather than by the strength of the arguments presented (Petty, Cacioppo, & Goldman, 1981).

Although the "expert" heuristic is well documented, research has largely failed to exam the influence of groups of experts (Pronpitakpan, 2004). If a single expert has influential abilities, then it is reasonable that a group or organization of experts would exert even more influence. A recent study by Votruba and Kwan (2012) examined the relative influence of a recommendation from an organization of experts compared to an individual expert. The study created recommendations from individual experts and organizations of experts with varying degrees of relevant expertise and measured the participants' perceptions of the effectiveness of the pharmaceutical drug being recommended. The results of the study showed that drugs endorsed by organizations of experts, regardless of their relevant expertise, were perceived as more effective than drugs endorsed by individual experts. Thus, expert groups have even more persuasive influence than individual experts.

When information is provided about the expert group making a recommendation, the "expert" heuristic is likely to be influential. This heuristic is made stronger because recommendations are typically made by a *group* of experts, rather than an individual expert. Thus, given the limited information

provided in most recommendations, the strength of the "expert" heuristic, and the

compounding of having multiple experts supporting the recommendation, this

type of recommendation is likely to be persuasive.

DECISIONAL COHESION

Although recommendations from expert groups are likely to be highly persuasive, a unique scenario can occur in which the group of experts is not in complete agreement regarding a recommendation. In fact, it is not uncommon for experts to disagree. For example, many medical advertisements support their product or practice by stating something similar to "4 out of 5 doctors agree . . ." In the example provided in the introduction, the report stated 97 out of the top 100 climate researchers agreed, showing that there is at least some disagreement among experts (EurekAlert!, 2010). The decisional cohesion of a group, the amount of agreement regarding the group's endorsement, can vary. It is even possible that a recommendation could be supported by barely a majority such as 3 out of 5 doctors, or only 51 out of 100 scientists. In these cases a majority of experts still agree with the recommendation but agreement is far from unanimous; the decisional cohesion lacks complete agreement. Are recommendations from expert groups less persuasive when the group is not in complete agreement, even though there may still be a majority who favor the recommendation? Although no research thus far directly answers this question, the literature on social consensus and the literature on entitativity offer some insight. The following sections will review the relevant literature and outline the implications for the persuasiveness of expert group recommendations.

Social Consensus and Persuasion

Social influence is a long demonstrated psychological phenomenon which is famously highlighted in the Asch experiments (e.g., Asch, 1955). Social

influence research has examined the persuasive influence of informing a recipient about the amount of social consensus on an issue. Research supports the theory that a consensus heuristic operates such that the more agreement there is for one side of an issue the more valid that position seems to the perceiver (Mackie, 1987). This leads to acceptance of the majority position and can induce significant attitude change. Mackie's study manipulated consensus surrounding a position by presenting students at a university with information that an 82% majority of students favored one side of an issue and that an 18% minority of students favored the other. When the peer based social consensus information was provided in the absence of additional persuasive arguments, recipients rated agreement with the majority view as more accurate, they were able to generate more arguments supporting a majority view, and they showed attitude change in the direction of adopting the majority view.

Other researchers have also examined the role of consensus on the processing and effectiveness of a persuasive message. One team theorized that information about the mere consensus on an issue could influence how a recipient felt about a message (Erb, Bohner, Schmalzle, & Rank, 1998). Based on their theory, high consensus leads to more favorable thinking which, in turn, affects the persuasiveness of the message. They manipulated social consensus by telling recipients, "In a public discussion meeting on this large scale-project, a majority [minority] of about 85% [15%] of participants agreed with the construction project." The study also included a condition in which no information on social consensus was provided. Results showed that when consensus information was

present, systematic processing—thoughtful scrutiny of issue-relevant information to reach a conclusion—decreased and heuristic processing—reliance on associations and other non-content cues in deciding to accept a conclusion—dominated. The study also found that high consensus information evoked more positive thoughts on the issue than low consensus information resulting in higher agreement with the attitude measures. Messages supported by low consensus evoked more negative thoughts and were less persuasive compared to messages supported by high consensus.

Another group of researchers examined whether information regarding social consensus was still influential even when the "polling" consisted of a relatively small sample (Darke et al., 1998). The study manipulated the amount of social consensus of a peer student group, 80% majority in favor of or against comprehensive senior exams. It also manipulated the size of the poll, whether 1,000 or ten students were polled. The results showed that when motivation was low—when heuristic processing is primarily used—participants were influenced by the level of consensus even when the consensus information was based on a relatively small polling.

Although a number of parallels can be inferred between social consensus and expert group decisional cohesion, it is important to point out two key distinctions. First, social consensus generally refers to consensus in the general public or the recipient's peers. In the studies discussed, social consensus was typically manipulated by providing information based on polling from these types of lay groups. In contrast, decisional cohesion references agreement among

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members of expert groups such as the CDC or other prominent advisory institutions. These members are experts and are distinct from peers or the general public because they have specialized knowledge about the topic of interest. It is the distinction between using the results of a public opinion poll and referencing the CDC to determine how best to prevent getting the flu. Second, social consensus, as generally operationalized, is focused on the distinction between majorities and minorities (e.g., Darke et al., 1998; Erb, Bohner, Schmalzle, & Rank, 1998). In the discussed studies, recipients were provided information worded to include the term "majority" or "minority" and were then provided with a specific percentage of people that supported this indication, somewhere around 80% for the majority. In the case of recommendations, the expert group endorsing the recommendation will always have a majority in favor of the recommendation or else the recommendation would not be made. Thus, when discussing decisional cohesion, the recommendation is always supported by a majority of the experts. The distinction is whether there is barely a majority, say 6 out of 10 supporting the recommendation, or whether there is a larger majority such as 10 out of 10 experts supporting the recommendation.

Group Entitativity and Persuasion

Entitativity is an important factor when examining the perceptions and persuasiveness of groups. Campbell (1958) originally coined the term entitativity. He defined it as "the degree of being entitative. The degree of having the nature of an entity, of having real existence" (Campbell, 1958, p. 17). Researchers have since further defined the term as the "degree to which a collection of individuals

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is perceived to be bonded together to form a coherent group" (Clark & Wegener, 2009, p. 42). Groups high in entitativity are perceived as more united and as representing a *singular* unit compared to groups lower in entitativity. Components of entitativity include: the similarity and proximity of members, the organization of the various elements, the interdependence of the members, and expectations of behavioral consistency (McConnell, Sherman, & Hamilton, 1997).

Clark and Wegener (2009) examined the influence of group entitativity on persuasion and extended prior research by examining the effects of pro-attitudinal and counter-attitudinal arguments. They theorized that high-entitativity groups, groups that are more cohesive, are perceived as more organized and more likely to bring about future outcomes. Thus, when high-entitativity groups endorse a favorable position, processing is less in depth resulting in more superficial and heuristic based decision making. Recipients focused less on argument strength and instead focused on heuristics, resulting in thinking more favorably about the message. In contrast, when low-entitativity groups endorse a favorable position processing becomes more in depth and less heuristically driven. This was theorized to be the result of concerns that the group would be ineffective at promoting the preferred position resulting in greater reliance on argument strength. The results of their studies supported this theory.

Decisional cohesion may influence perception of entitativity and cue the cohesiveness of the group. Expert groups that are high in decisional cohesion will be viewed as more of a unified, singular unit ultimately making their recommendations more persuasive and eliciting more behavioral change. In

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contrast, groups low in decisional cohesion cue low levels of entitativity and consequently low organizational ability thus weakening the overall persuasiveness of their recommendations. Thus, perceived entitativity may mediate the relationship between the decisional cohesion of the expert group and the persuasiveness of the recommendation.

In addition to the decisional cohesion, the framing of the language of a recommendation may influence its persuasiveness. As mentioned in the introduction, the CDC's recommendation states that getting a flu vaccine is "the first and most important step in protecting against flu viruses" (CDC, 2011). There are other ways the CDC could have stated the recommendation. For example, they could have said "the first and most important step in maintaining your health." This wording focuses on what the benefits of getting a flu vaccine, staying healthy, rather than potential negative consequence of not getting the vaccine, getting sick with the flu. This example outlines one systematic way that the framing of persuasive messages can vary. As originally worded, the CDC recommendation focused on the loss, getting sick, but they could have also chosen to highlight the gain, being healthy. Using a skin cancer example, a gain framed recommendation could read, "Use sunscreen to help your skin look healthy." In contrast, a loss framed recommendation might read, "Without sunscreen you increase your risk of skin damage."

The influence of message framing was first explored by Kahneman and Tversky (1979; 1982; 1984) when they proposed the highly influential Prospect Theory. Based on Prospect Theory and supported by their research, framing effects occur when objectively equivalent alternatives are evaluated in relation to different reference points. In general, when presented with mathematically equivalent risky and certain options, people have a bias towards being risk adverse when a situation is framed as a gain and risk seeking when the identical

situation is framed as a loss. When presented with two options that both emphasize potential gains, people tend to choose the less risky option. For example, Tversky and Kahneman (1981) told participants to imagine the U.S. was preparing for the outbreak of a disease that was expected to kill 600 people. Participants who received the gain frame were given a decision problem and asked to choose between two alternative programs: (1) Program A, where 200 people will be saved and (2) Program B, where there is a one-third probability that 600 people will be saved and a two-thirds probability that no people will be saved. Because these options were gain framed, focused on *saving* lives, participants were risk adverse and 72% chose Program A, the program that was certain to save 200 people.

In contrast, when the same problem was presented as a loss frame, the two alternative programs were: (1) Program C, where 400 people will die and (2) Program D, where there is a one-third probability that no one will die and a two-thirds probability that 600 people will die. These programs substituted the number of people who would *die* for the number who would be saved in corresponding proportions. Participants were risk seeking and 78% choose the riskier Program D. Tversky and Kahneman (1981) also found that the value function, on which Prospect Theory is based, is steeper for losses than gains indicating that "losses loom larger than gains" (p. 456). The threat of a loss has a stronger impact on an individual's decision making than the prospect of an equivalent gain. For example, consumers are more willing to forego a discount than accept a surcharge even when the value is equivalent.

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Like the decision problems in Kahneman and Tversky's work, recommendations can be framed as either gains or losses. Recommendations can focus on the potential benefits of their proposed behavior and thus be framed as a gain. For example, a recommendation asking a recipient to wear sunscreen could focus on having "healthy skin." Recommendations can also be loss framed and focus on the proposed negative consequences of none adherence. Rather than focusing on healthy skin, the same recommendation could highlight using sunscreen to "prevent skin damage." The framing of recommendations could affect their influential abilities in predictable ways depending on the risks involved.

To understand the influence of framing on recommendations, it is important to know the potential risk associated with the recommendation. Kahneman and Tversky's work focused on certainty or a lack of certainty, as an operationalization of the level risk. For recommendations, it will be the recipient's perception of recommendation accuracy that influences the perceived risk involved in adhering to the recommendation. Decisional cohesion could act as a cue to the level of certainty of the accuracy of a recommendation and in so doing influence the perceived risk involved in adhering to the recommendation. Based on this idea a number of predictions can be made. First, as noted by Tversky and Kahneman (1981) "losses loom larger than gains." This means people will be less willing to accept having damaged skin by not wearing sunscreen than they are willing to forego having healthy skin. Therefore, loss framed recommendations should be more persuasive because people are less

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willing to accept a loss than they are willing to forego a gain. In addition, when there is low decisional cohesion people are going to be especially unwilling to take further risk. Thus, loss framed messages should be even more persuasive than gain framed messages when decisional cohesion is low. It is important to note that recommendations are different from the decision problems used in Kahneman and Tversky's studies, and they offer an opportunity to extend their work. When evaluating the persuasiveness of a recommendation, the recipient will only see one version of the recommendation and they will answer questions regarding persuasiveness rather than choosing between two options. This study may help demonstrate the broader context in which framing effects can occur.

CURRENT STUDY

This thesis study is a systematic examination of the persuasiveness of expert group recommendations like those found in everyday life. More specifically, this study asks the following questions. How does the decisional cohesion of the expert group making a recommendation and the framing of the recommendation affect its persuasiveness? Is a recommendation supported by 6 out of 10 experts less persuasive than one supported by 10 out of 10 experts? Do the effects of having something framed as a gain versus a loss differ based on the amount of decisional cohesion? In this study I manipulated the amount of decisional cohesion and the framing of the recommendation to answer these questions. Decisional cohesion was manipulated using 5 levels: (1) 10 out of 10 expert agreement, (2) 9 out of 10 expert agreement, (3) 8 out of 10 expert agreement, (4) 7 out of 10 expert agreement, and (5) 6 out of 10 expert agreement. Framing was manipulated by framing the recommendation as either a loss or gain.

The study also manipulated the domain of the recommendation such that there are two different vignettes each encompassing a different domain of common decisions making. One involved a health recommendation and the other a financial recommendation. The domain is manipulated to test whether the effect is sensitive to the content of the recommendation. In all, this study consists of a 5 (decisional cohesion) x 2 (frame) x 2 (domain) between-subjects design.

Hypotheses

A number of hypotheses regarding this study can be derived from a synthesis of the literature surrounding the "expert" heuristic, social consensus,

entitativity, and framing effects. I will first discuss a series of hypotheses best supported by the literature. Then I will discuss an alternative hypothesis.

Main Hypotheses. First, I predicted that there would be an interaction between framing and decisional cohesion such that the discounting for the gain framed recommendations between high and low decisional cohesion would be significantly larger than for the loss framed recommendation. According to Kahneman and Tversky (1981) "losses loom larger than gains." Therefore participants will be more motivated to follow the recommendation when the framing highlights the potential loss rather than the potential gain. Thus loss framed recommendations should be overall more persuasive. But, when there is low decisional cohesion, the difference between the loss framed and gain framed messages will be significantly larger than when there is high decisional cohesion. Since decisional cohesion is low, participants in the gain framed condition will be far less likely to take a risk compared to those in the loss framed condition. Thus the gain framed recommendation will be even less persuasive when decisional cohesion is low. Those in the loss framed condition are more likely to take a risk and follow the recommendation to mitigate the highlighted loss. Since participants in the loss framed conditions are far more willing to take risks the difference between the high and low decisional cohesion is smaller than in the gain framed conditions.

Second, there will be an overarching main effect of decisional cohesion, such that recommendations from expert groups with higher decisional cohesion will be more persuasive than those with low decisional cohesion.

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Recommendations supported by 10 out of 10 experts will be more persuasive than recommendations supported by only 6 out of 10 experts. Decisional cohesion will function as a heuristic cue for the recipients. If a greater proportion of experts support a recommendation, then as theorized, the recommendation will be more persuasive.

Third, there should be no observed difference between the two domains. The research on social consensus, entitativity, and framing effects has shown pervasive effects in multiple domains. Thus there is limited reason to suspect that the influence of decisional cohesion and framing should not generalize to multiple domains.

Finally, I predict that the perceived entitativity of the expert group will mediate the relationship between the decisional cohesion of the expert group and the persuasiveness of the recommendation. High decisional cohesion should increase the perceived entitativity of the expert group which will increase the persuasiveness of the recommendation. Likewise, when decisional cohesion is low, there will be lower perceived entitativity thus decreasing the persuasiveness of the recommendation.

Alternative Hypothesis. One alternative hypothesis is that a main effect of domain exists and differences will be observed in the results between the health domain and the financial domain. One possible reason for differences could be the relative severity of the harm the recommendation is intended to prevent. Harm related to a recipient's health may be viewed as more serious than financial harm, thus influencing the recipient's perceptions of the recommendation. A

main effect of domain would only reflect a difference between the perceived

relative harm and will have no effect on the other hypotheses.

METHODS

Participants

This study was part of the PGS 101 Questionnaire administered at the start

of the fall 2012 semester. The PGS 101 Questionnaire was taken by 2203

participants. Of those, 1,981 completed this study.[1] Examining the gender of

these participants, 54.0% were female and 45.6% were male (8 participants did

not indicate their gender). The average age was 19.19 years old (3 participants

did not indicate their age and one participant incorrectly answered the question

with his student ID number therefore his response was removed from the age

analysis). The ethnic breakdown of the participants consisted of: 64.3%

White/Caucasian, 3.6% Black/African-American, 14.8% Hispanic/Latino, 1.0%

Native American, 5.8% East Asian, 1.5% South Asian, 0.4% Southeast Asian,

3.1% Asian-American, 1.3% Middle Eastern, 0.6% Arab/Arab-American, and

3.4% chose the "other" category (6 participants did not indicate an ethnicity).

Participants received course credit for completing the questionnaire.

Design

This study consisted of a 5 x 2 x 2 between-subjects design with three

factors: decisional cohesion, framing, and domain. The decisional cohesion

factor includes five levels from high decisional cohesion among the experts

making the recommendation to low decisional cohesion using the following

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[1] The 222 missing participants were the result of a programming issue in one version of the PGS 101 questionnaire. The error resulted in the participants skipping the entire rest of the questionnaire—including this study—after another a previous set of measures. This error was caught after only a short period of time. It did not affect the participant's assignment to conditions because random assignment occurred in every version of the PGS 101 questionnaire and took place after the participants read the directions of this study. Therefore, the only effect is the reduction in the number of participants.

wording: "10 out of 10," "9 out of 10," "8 out of 10," "7 out of 10," and "6 out of 10". Framing consists of two levels, gain framed and loss framed, and domain also consists of two levels, a health domain recommendation and a financial domain recommendation. It is important to note that framing can be manipulated a number of different ways. For example, framing can focus on the behavioral action (attaining versus not attaining a desired behavior), on the outcome of the behavior (desirable outcome such as staying health versus an undesirable outcome such as having cancer), or a combination of the two (Detweiler, Bedell, Pronin, & Rothman, 1999). In this study, framing was manipulated by focusing on the desirability of the outcome.

Materials

Appendix A contains the materials provided to the participants. Prior to receiving any study materials, the participants read these directions: "Various organizations are frequently making recommendations to the public. We are interested in evaluating your perceptions of these types of recommendations. The following provides some information about an organization and its recommendation. Please read the provided information and then answer the questions that follow." After reading the directions, the participants were randomly assigned to one of twenty conditions. Each version of the study is described in the following sections, organized by the domain of the vignette.

Health domain. After having read the directions, the participant then received information providing them with background on the organization making the recommendation. This initial paragraph is where the decisional cohesion

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factor was manipulated. Those in the high decisional cohesion conditions read, "An organization of health experts has made a recommendation to the public. The organization set up a panel of 10 experts to review the relevant research on the issue and vote in order to determine their recommendations. The following is their current recommendation which *10 out of 10* of the experts voted in favor of: . . ." For the other decisional cohesion conditions, only the language in italics differed stating either "9 out of 10," "8 out of 10," "7 out of 10," or "6 out of 10".

After having reviewed the paragraph introducing the expert group making the recommendation, the participants then read the recommendations. The gain framed health recommendation read, "Our group of experts recommends reducing your consumption of sugar sweetened beverages, such as soda, to *maintain a healthy weight*." Those in the loss framed recommendation conditions read a similar recommendation, but the final words in italics read "prevent an unhealthy weight."

Financial domain. The financial vignette followed an identical format to the health vignette. After having read the directions, the participant in the financial domain then received the same paragraph of information in which the decisional cohesion factor is manipulated. The only change is that the experts referred to in the first sentence of the paragraph were financial experts instead of health experts. Otherwise the decisional cohesion manipulations were identical. After having reviewed the paragraph introducing the recommendation and the expert group making the recommendation, the participants then read the financial recommendation. Participants in the gain framed recommendation conditions

read the following recommendation, "Our group of experts recommends that college students acquire one, and only one, national credit card and continually pay the full balance each month to *build good credit*." Participants in the loss framed conditions received a similar recommendation, with only the italicized portion of the recommendation changed to read "prevent bad credit."

Dependent measures. All of the dependent measures are reproduced in Appendix B including the Likert scales that were used for each measure. The dependent measures include: (1) persuasiveness measures that were combined into a composite for analyses; (2) an entitativity measure; (3) a behavioral intentions measure; (4) a measure of perceived accuracy of the recommendation; (5) information seeking measures; (6) a manipulation check; and (7) a series of standard demographic questions.

Persuasion measures. After having read one of twenty randomly assigned vignettes including a description of the expert organization and its recommendation, a series of questions measured the persuasiveness of the recommendation including a direct question about persuasiveness and two questions that in combination represent perceptions of credibility. The attitude question directly measuring perceived persuasiveness read, "How persuasive was this recommendation?" (rated on a scale of 1= *very unpersuasive* to 7 = *very persuasive*). In order to garner a more complete understanding of the influence of the manipulations on the perception of the recommendation, the perceived credibility of the organization making the recommendation was also measured. According to the literature on authority, the perceived credibility of an authority is

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strongly linked with perceptions of trust and expertise (Pornpitakpan, 2004).

Therefore measures of both trust and expertise were included. For both measures,

respondents were asked to "Please indicate your level of agreement with the

following statement: . . ." Then they read the expertise statement, "The group

making this recommendation is an expert on the topic," and were asked to

indicate their agreement with the statement on a scale of 1= *Strongly Disagree* to

7 = *Strongly Agree*. Directly following the expertise statement was the trust

statement, "The group making this recommendation is trustworthy." The

participant then rated this statement using the same scale.

In order to create a composite measure of the persuasiveness of the

recommendation, I averaged these three measures. I examined the intraclass

correlations between the items to ascertain whether they measured the same

underlying concept of persuasiveness and determined if they were internally

consistent. The correlations were high and Cronbach's alpha was .754. See Table

1 in Appendix C for the correlations of the measures.

Entitativity measure. As hypothesized, the perceived entitativity of the

expert group making the recommendation should mediate the effect of decisional

cohesion on persuasiveness. Therefore a measure of entitativity was included

prior to the persuasiveness measures. Modeled after a single question measure of

entitativity used by Clark & Wegener (2009), participants were asked, "To what

extent do the experts deciding on the recommendation qualify as a cohesive,

unified group?" The response options ranged from 1 = *Not Really a Group* to 7 =

Very Much so a Group.

Behavioral intent measure. In order to measure the behavioral intentions of the participants, the participants were asked, "How likely are you to start following the recommendation?" The response scale ranged from 1 = *Very Unlikely* to 7 = *Very Likely*.

Additional exploratory measures. Participants were given a number of additional measures for exploratory analyses including a measure of perceived accuracy of the recommendation, a measure regarding information seeking intentions, and they were asked to rate various reasons for seeking additional information. To measure the perceived accuracy of the recommendation, participants were asked, "How accurate do you believe this recommendation is?" (rated on a scale of 1= *not very accurate* to 7 = *very accurate*). Participants were also asked, "How likely are you to seek additional information about this recommendation?" (rated on a scale of 1 = *Very Unlikely* to 7 = *Very Likely*). Following this question, participants were then asked to "Please rate the following reasons for why you would seek additional information about the recommendation: . . ." which was followed by four statements, "I want to learn more about the research behind the recommendation," "I do not trust the recommendation by this organization of experts," "There might be exceptions to the general rule, which I would like to know about," and "There might be other options that I would prefer to use." Participants rated their agreement with each of these statements on a scale of 1 = *Strongly Disagree* to 7 = *Strongly Agree*.

Manipulation check measure. To check that the decisional cohesion manipulation was retained by the participants, after answering each of the above

measures they then answered an objective question intended to measure their memory of the manipulation. Participants were asked, "How many experts voted in favor of making the recommendation?" and were provided the response options of "a. 6 out of 10," "b. 7 out of 10," "c. 8 out of 10," "d. 9 out of 10," and "e. 10 out of 10".

Demographic questions. Participants were also asked to report standard demographic information including information about the participant's age, gender, and ethnicity.

Procedure

This study was conducted online along with the rest of the PGS 101 questionnaire using the SONA System, which is routinely used to administer studies. The questionnaire was created using Qualtrics survey software. Participants first answered a series of demographic questions. Then, depending on which of four versions of the PGS 101 questionnaire they received, they completed one or two short questionnaires for other unrelated psychology studies. This took the participants approximately five to ten minutes. At this point, participants started this study by reading the provided directions. After reading the directions, participants from all four version of the PGS 101 questionnaire were randomly assigned to one of twenty experimental conditions. They then reviewed the single version of the study materials they received and answered each of the measures including: (1) the persuasiveness measures; (2) an entitativity measure; (3) a behavioral intentions measure; (4) a measure of perceived accuracy of the recommendation; (5) information seeking measures;

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and (6) a manipulation check. Following completion of this study, participants

finished the rest of the PGS 101 questionnaire, were debriefed, and received credit

for its completion.

Manipulation Check

In order to assess the degree to which the participants paid attention to the

manipulation of decisional cohesion, a question asked the participant to reproduce

the level of decisional cohesion they were provided in the vignette. Of the

students who completed the study, 68.1% correctly responded to this question.

To ensure that those who failed to accurately answer the manipulation check

question had no effect on the results, I duplicated all of the analyses ran on the

complete set of participants with only the participants who correctly responded to

the manipulation check question. The analyses consisting of the 68.1% of

participants who correctly responded to the question resulted in the same pattern

of results as when all participants were included.

I also ran the analyses including the 80.9% of participants who responded

to the manipulation check question correctly or within one unit of being correct

(for example, if they received the manipulation of "9 out of 10" experts agreeing

and they responded "8 out of 10" then they would be included). Again, when

compared to the results which included all participants, these analyses followed

the same pattern. Thus, the reported analyses include all of the participants.

RESULTS

Hypotheses Related Analyses

Analysis of Variance (ANOVA) was used to test the predicted hypotheses.

The hypotheses were primarily tested using the persuasiveness composite

measure, although the exploratory analyses—discussed below—include

additional dependent measures. For the tables of means for the persuasiveness

composite measure, see Table 2 and Table 3 and Figure 1 and Figure 2 which

graph the means.

Hypothesis 1: Interaction of framing and decisional cohesion. Prior to

testing for a two-way interaction of framing and decisional cohesion, I examined

the three-way interaction of framing, decisional cohesion, and domain for the

persuasiveness composite measure. The three-way interaction was not

significant, $F(4, 1942)= 1.210, p = .305$, see Table 2 and Figure 1. Since there is

no observed three-way interaction, I next examined the two-way interactions.

My first hypothesis was that there would be an interaction between

framing and decisional cohesion such that the discounting for the gain framed

recommendations between high and low decisional cohesion would be

significantly larger than for the loss framed recommendation. The analyses

showed that there was no observed interaction between framing and decisional

cohesion for the persuasiveness composite measure ($F(4, 1942)= .841, p = .499$),

indicating that the participants did not treat decisional cohesion differently based

on whether the recommendation was framed as a gain or loss, see Table 2 and

Figure 1. Prior to moving on to the main effects, I examined the interaction of

decisional cohesion and domain and the interaction of framing and domain for the persuasiveness composite measure. No significant effects were present (respectively $F(4, 1942)= 1.491$, $p = .202$; $F(1, 1942)= 1.216$, $p = .270$).

As part of the first hypothesis, I also predicted that there would be a main effect of framing. Loss framed recommendations should be more persuasive than gain framed recommendations. In this study, there was no observed main effect of framing on the persuasiveness composite measure, $F(1, 1942)= .555$, $p = .457$ (see Table 2 and Figure 1). Thus, there were no differences observed between loss framed and gain framed recommendations. I will discuss possible reasons for not finding an effect of framing in the general discussion section.

Hypothesis 2: Main effect of decisional cohesion. The second hypothesis predicted that there would be a main effect of decisional cohesion such that when there is more decisional cohesion, for example when 10 out of 10 experts or 9 out of 10 experts agree, the recommendation should be more persuasive than when there is less decisional cohesion. A main effect of decisional cohesion was observed for the persuasiveness composite measure, $F(4, 1942)= 3.441$, $p = .008$, see Table 3 and Figure 2. To better understand this finding I ran a regression analysis to examine the trend. There was a linear trend indicating the higher the decisional cohesion of the expert group making the recommendation, the more persuasive the recommendation, $\beta = .039$, $R^2 = .003$, $p = .015$.

Given that a main effect of decisional cohesion was observed, it is also possible that the effect could have something other than a linear relationship.

Therefore, I tested whether there was a quadratic effect of the decisional cohesion of an expert group on the persuasiveness of their recommendation using a regression model that included a variable representing a quadratic effect. When the regression model was tested including the quadratic effect, the quadratic variable was non-significant ($\beta = .020$, $p = .138$). Based on these results, a model including only the linear term better fit the data, $\beta = .039$, $R^2 = .003$, $p = .015$.

Hypothesis 3: Main effect of domain. Although my third hypothesis predicted that there would be no effect of domain, there was an observed main effect of domain on the persuasiveness composite measure, $F(1, 1942) = 25.018$, $p < .001$. Overall, the health domain recommendation ($M = 4.47$, $SD = 0.98$) was on average more persuasive than the financial domain recommendation ($M = 4.24$, $SD = 1.05$), see Table 3 and Figure 2. This is consistent with the alternative hypothesis that there may be a difference in the persuasiveness of the domains because of their relative seriousness.

Hypothesis 4: Perceived entitativity as a mediator. To further explore the underlying mechanism driving the effect of decisional cohesion, this study included a measure of the perceived entitativity of the expert group making the recommendation with the intention of better understanding how entitativity might mediate the relationship between the level of decisional cohesion and the recommendation's persuasiveness (see Figure 3). I conducted a series of regression analyses and used the Sobel test to examine the mediation effect. First, I ran a regression and found that the amount of decisional cohesion was associated with perceived entitativity, such that the higher the decisional

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cohesion—the more agreement among the experts—the more entitative the expert group making the recommendation seemed, $\beta = .092$, $R^2 = .013$, $p < .001$. See Figure 3b: the mediation path. A separate regression including only decisional cohesion in the model, as shown in Figure 3a, showed that decisional cohesion was associated with the persuasiveness composite measure such that the higher the decisional cohesion, the more persuasive the recommendation, $\beta = .039$, $R^2 = .003$, $p = .015$. Perceived entitativity was also related to persuasiveness such that the higher the perceived entitativity the higher the score on the persuasiveness composite measure, $\beta = .394$, $R^2 = .201$, $p < .001$, see Figure 3b. Finally, when the persuasiveness composite measure was regressed on perceived entitativity and decisional cohesion, the perceived entitativity was a significant predictor of the persuasiveness of the recommendation ($\beta = .393$, $p < .001$) but decisional cohesion was not ($\beta = .003$, $p = .847$; overall model $R^2 = .201$, $p < .001$).

This series of analyses shows that decisional cohesion did not remain a significant predictor of the persuasiveness of a recommendation when the perceived entitativity of the expert group making the recommendation was accounted for in the model. This suggests that the relationship between decisional cohesion and the persuasiveness of a recommendation is mediated by perceived entitativity and is supported by the Sobel test, $z = 4.98$, $p < .001$. Participants in high decisional cohesion conditions perceived the expert group making the recommendation as having more entitativity and therefore found the recommendation more persuasive. Similarly, when an expert group making a

recommendation is low in decisional cohesion, then that group is perceived as having less entitativity and the recommendation is less persuasive.

Exploratory Analyses

   Behavioral intention measure. In addition to the persuasiveness composite measure, this study also included a measure of the participants' intention to follow the recommendation. See Table 4 and Table 5 as well as Figure 4 and Figure 5 for the tables and graphs of the means. Like the persuasiveness composite measure, there was not a significant three-way interaction ($F(4, 1931) = .663$, $p = .618$) nor were any of the two-way interaction significant (Frame x Cohesion, $F(4, 1931) = .825$, $p = .509$; Domain x Cohesion, $F(4, 1931) = .639$, $p = .634$; Domain x Frame, $F(1, 1931) = .010$, $p = .920$). In addition, there was no main effect of framing ($F(1, 1931) = 1.359$, $p = .244$) nor decisional cohesion ($F(4, 1931) = .839$, $p = .500$). Thus, none of the hypotheses were supported by the behavioral intentions measure. There was an observed significant main effect of domain such that participants had stronger intentions to follow the recommendation for the health domain ($M = 4.55$, $SD = 1.57$) than the financial domain ($M = 4.16$, $SD = 1.53$), $F(1, 1931) = 28.993$, $p < .001$, see Table 5 and Figure 5.

   Information seeking measures. As an exploratory question, this study also measured the participants' intentions to seek additional information related to the recommendation and asked the participants to rate their agreement with four reasons why they might seek additional information: (1) he/she wants to "learn more about the research behind the recommendation"; (2) he/she "does not trust

the recommendation"; (3) "[t]here might be exceptions" to the recommendation the participant would want to know about; and (4) "[t]here might be other options" the participant would prefer to use. See Table 6 and Table 7 as well as Figure 6 and Figure 7 for the tables and graphs of the means.

For the information seeking measure, there was not a significant three-way interaction ($F(4, 1931)= .366, p = .833$) nor were any of the two-way interactions significant (Frame x Cohesion, $F(4, 1931)= .510, p = .728$; Domain x Cohesion, $F(4, 1931)= .361, p = .836$; Domain x Frame, $F(1, 1931)= .011, p = .915$). See table 6 and Figure 6. In addition, there was no main effect of domain ($F(1, 1931)= .970, p = .325$) nor framing ($F(1, 1931)= .050, p = .823$).

There was, however, a marginally significant effect of decisional cohesion, $F(4, 1931)= 1.969, p = .097$, see table 7 and figure 7. A regression analysis showed that a model including a quadratic term ($\beta = .054, p = .019$) best fit the data (overall model $R^2 = .004, p < .028$). Thus, participants were less likely to seek additional information when the recommendation was made by 8 out of 10 experts than when it was made by either 10 out of 10 or 6 out of 10 experts. It could be the case that when the level of decisional cohesion indicates more uncertainty, such as when the level of decisional cohesion shows some disagreement between the experts but not enough to entirely discredit the recommendation, participants are less likely to further inquire about the recommendation.

I ran a four-way ANOVA to determine if there were any interactions among the four different reasons for seeking additional information and the

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experimental manipulations of decisional cohesion, framing, and domain. See Table 8 for a table of the means and see Figure 8 for a graph of the means of the reasons for seeking additional information. The only significant interaction was between the reasons for seeking additional information and the domain of the recommendation, $F(3, 5757)= 12.631, p < .001$. Simple effects comparisons showed that there was no difference between the two domains in the participants' rating of wanting to know more about the research behind the recommendation ($F(1, 1947)= .975, p = .324$). But for the other three reasons there were observed significant differences (lack of trust in the recommendation, $F(1, 1950)= 31.197, p < .001$; wanting to know exceptions, $F(1, 1946)= 8.375, p = .004$; wanting to know other options, $F(1, 1944)= 30.070, p < .001$). As shown in Table 8 and Figure 8, participants rated higher levels of agreement with lacking trust in the recommendation, wanting to know more about exceptions to the recommendation, and wanting to know about other options as reasons for seeking more information for the financial domain compared to the health domain. This may suggest that the participants were more skeptical of the financial recommendations than the health recommendations, thus they were generally more interested in receiving additional information about them.

I also ran a series of ANOVAs comparing the reasons for information seeking within each domain to determine whether a lack of trust in the recommendation was an important reason for information seeking compared to the others. This was of theoretical interest because trust is one of the key components of the credibility of an expert. For the health domain, participants

rated a lack of trust in the recommendation as significantly less of a reason for information seeking than any other reason (wanting to know more about the research, $F(1, 986)= 325.368$, $p < .001$; wanting to know exceptions, $F(1, 986)= 478.311$, $p < .001$; wanting to know other options, $F(1, 983)= 482.769$, $p < .001$). For the financial domain, a lack of trust in the recommendation was also the lowest rated reason for information seeking, (wanting to know more about the research, $F(1, 961)= 122.827$, $p < .001$; wanting to know exceptions, $F(1, 960)= 336.438$, $p < .001$; wanting to know other options, $F(1, 961)= 587.290$, $p < .001$). Thus, it appears that a lack of trust in the recommendation was overall the least influential reason for seeking additional information.

Perceived accuracy as a mediator. In addition to testing perceived entitativity as a mediator, I also examine whether the perceived accuracy of the recommendation mediated the relationship between the decisional cohesion of the experts making a recommendation and the persuasiveness of their recommendation. Following the same steps as above, I first ran a regression and found that the level of decisional cohesion of the expert group was not associated with the perceived accuracy of the recommendation, $\beta = .005$, $R^2 = .000$, $p = .823$. Since there was no relationship between the decisional cohesion and accuracy, the proposed mediator, mediation cannot exist. Therefore, the perceived accuracy of the recommendation did not mediate the relationship between the decisional cohesion of the experts and the persuasiveness of the recommendation.

DISCUSSION

Summary of Findings

Based on the results of this study, there are a number of significant findings. First, there was a linear main effect of decisional cohesion such that the higher the amount of decisional cohesion in an expert group the more persuasive their recommendation based on the persuasiveness composite measure. In addition, there was a main effect of domain. Overall the recommendations for the health domain were more persuasive than those for the financial domain. The main effect of domain was also observed in the behavioral intentions measure following the same pattern of the health domain recommendation being more persuasive than the financial domain recommendation. Moreover, the analysis showed that perceived entitativity mediated the relationship between the decisional cohesion of the expert group and the persuasiveness of the recommendation. The higher the decisional cohesion of the expert group, the more entitative the participants perceived the group, and the more persuasive the participants found the recommendation.

Additional exploratory analyses showed a quadratic main effect for the information seeking measure. Participants were more likely to seek additional information about the recommendation when it was voted in favor of by 10 out of 10 or 6 out of 10 experts compared to when it was voted in favor of by 8 out of 10 experts. When examining the reasons for seeking additional information, participants rated their lack of trust in the recommendation, wanting to know the exceptions, and wanting to know alternative option reasons higher for the

financial domain compared to the health domain possibly indicating that they were less sure of the financial recommendation. The two domains did not differ in terms of how the participants rated wanting to know more about the research as a reason for seeking additional information. Additionally, a lack of trust in the recommendation was rated as the least important reason for seeking additional information indicating that trusting the recommendation was not a key factor in wanting additional information.

In conclusion, two hypotheses were supported by the data including the predicted main effect of decisional cohesion and the mediation effect of perceived entitativity on the relationship between decisional cohesion and the recommendation's persuasiveness. The predicted interaction of decisional cohesion and framing and the predicted main effect of framing were not supported by this study. In addition, there was an observed main effect of domain when I predicted that there would be no difference between the domains, therefore that hypothesis was not supported, although the results did fit the alternative hypothesis and had no effect on the other hypotheses as there were no interactions between the domain and any of the other independent variables.

Limitations, Future Directions, and Implications

There are a few possible limitations which may have contributed to the unexpected findings. First, it is possible that the framing manipulation was too subtle to produce an effect. The single statement of a potential gain or potential loss may not have been a strong enough manipulation to produce the desired effect. Previous studies where framing effects existed for recommendations have

listed multiple outcomes for each frame (e.g., Banks, Salovey, Greener, Rothman, Moyer, Beauvais, & Epel, 1995; Detweiler, Bedell, Salovey, Pronin, & Rothman, 1999; Dijkstra, Rothman, & Pietersma, 2011; Gerend & Cullen, 2008). For example, one study that examined the effect of framing on a recommendation for eating more fruits and vegetables listed a number of outcomes which included for the gain framed message: (1) better health, (2) improved physical stamina, (3) skin looks healthier, (4) hair looks healthier, (5) improved concentration on mental tasks, (6) lower blood pressure, (7) lower cholesterol, (8) higher levels of vitamins and minerals, and (9) sufficient consumption of essential anti-oxidants (Dijkstra, Rothman, & Pietersma, 2011). Future studies exploring the interaction of decisional cohesion and framing could create more elaborate manipulations including listing multiple outcomes with the intention of increasing the strength of the framing manipulation.

Another potential limitation of this study is the content of the actual recommendations. There could be a couple of issues with recommendations about consuming sugary beverages and responsible credit card use. One issue is that the participants may be too familiar with the recommendations or view them as too obvious causing the experimental manipulations to have a minimized or undetectable effect. This could in part explain why no framing effects were observed and why there was a rather small effect size for the observed effect of decisional cohesion. Future studies could use recommendations that are less obvious or familiar to the participants. By doing so, it would likely increase the

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participants' reliance on peripheral information, such as the level of decisional cohesion or framing, and potentially increase the effect of the manipulations.

The results of this study also point to a number of possible, and potentially interesting, areas for future research. Follow-up studies could further explore the influence of decisional cohesion. For example, future studies could present decisional cohesion differently to see if the effect persists in alternative presentation methods. Is '6 out of 10' expert agreement the same as '60%' agreement or '30 out of 50' expert agreement? Additionally, future studies could examine whether the effect of decisional cohesion is also present in paradigms outside of a recommendation. For example, do the levels of decisional cohesion between members of a legislature voting on an issue affect public opinion on the outcome of that vote? Are people's perceptions of the legitimacy of a court ruling dependent on the level of agreement between the judges who made the ruling? Future studies could also explore the underlying mechanism creating the influence of decisional cohesion on persuasion. This study examined the mediation effects of entitativity but future studies could go farther and explore the effects of decisional cohesion on the cognitive processing of the message. Messages from expert groups high in decisional cohesion may be processed more heuristically— less in depth and using more heuristics and other cognitive shortcuts—than those low in decisional cohesion. This could possibly be explained by the notion that when there is high decisional cohesion there is less of a reason to "second guess" the group since they are all in agreement.

Additionally, future research could further explore what motivates individuals to seek additional information about a recommendation. In this study, there was a quadratic relationship and participants were less likely to seek additional information when there was more ambiguity in the level of decisional cohesion (when 8 out of 10 experts agreed). This is an interesting effect worth further exploration. Participants also rated not trusting the recommendation as the reason that least drove their information seeking and there was no interaction with the level of decisional cohesion. This finding is interesting because it contradicts other research that has focused on the importance of trust on an authority's influential abilities. Based on this research, I would have predicted that information seeking would increase when there is low decisional cohesion because of increased distrust of the recommendation, but the results of this study do not support this hypothesis. Future research could explore why trust is not a driver of information seeking and try to find the reasons that do drive information seeking.

Finally, future research should examine whether there are situations in which higher levels of decisional cohesion are actually less persuasive. It is possible that when expert groups are perceived as being highly homogenous—as having high levels of similarity—then having higher levels of agreement may actually make their arguments less persuasive. For example, it is possible that a recommendation made by 10 out of 10 highly conservative republicans may be less persuasive than one that is made by 7 out of 10 highly conservative republicans especially if the recommendation is related to a politically charged or

widely debated topic such as global warming. In situations where there is a highly homogeneous group, individuals may perceive extremely high levels of decisional cohesion less favorable because the individual attributes the experts' decision making as being overly influenced by group membership rather than by the expert's thorough scrutiny of the issue. Thus, when there is high homogeneity, high levels of decisional cohesion may evoke perceptions of increased group adhesion more than the credibility of the recommendation. In these situations, it is possible that having less agreement, such as 8 out of 10 experts agreeing, may actually be more persuasive because it will indicate less of an emphasis on adhesion to the group. In this scenario I would also expect individuals to be less trusting of the experts and would expect them to be more likely to want additional information because of that lack of trust.

By including five incremental levels of decisional cohesion I was able to verify the optimal level of decisional cohesion and examine the nature of the relationship between the different levels of decisional cohesion. The results of this study support the conclusion that higher levels of decisional cohesion are more persuasive than lower levels and that the relationship between the levels is linear. In addition, this effect is mediated by the perceived entitativity of the expert group. Thus, the higher the level of decisional cohesion, the more the expert group is perceived as having high entitativity and the more persuasive the recommendation. This study helps to build a better understanding of how individuals interpret information from experts. Experts are rarely in complete agreement and yet their level agreement is often presented to consumers.

Meaning that if policy makers want their recommendations to have the most impact they may need to focus resources on identifying and promoting recommendations for which there are higher levels of expert agreement. By doing so, their recommendations will likely be more influential. This study is the first of a program of research focused on better understanding the important role of experts and groups of experts in individual decisional making. This and future studies will help researchers and policy makers better understand individual decision making and the influence of experts.

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Table 1

Correlations between persuasive, trustworthy, and expertise

Measure	1	2	3
1. Expertise	_		
2. Trustworthy	.700	_	
3. Persuasive	.425	.452	_

Table 2

Table of means for the persuasiveness composite measure broken out by domain, framing, and decisional cohesion

	10 out of 10	9 out of 10	8 out of 10	7 out of 10	6 out of 10
	M	M	M	M	M
	(SD)	(SD)	(SD)	(SD)	(SD)
Health					
Gain Frame	4.58	4.42	4.27	4.42	4.46
	(.90)	(.99)	(1.07)	(.96)	(1.01)
Loss Frame	4.67	4.63	4.42	4.47	4.37
	(1.06)	(.91)	(.91)	(.99)	(.97)
Financial					
Gain Frame	4.15	4.55	4.19	4.04	4.32
	(.91)	(1.09)	(1.11)	(1.24)	(1.07)
Loss Frame	4.33	4.31	4.13	4.18	4.21
	(1.06)	(1.02)	(.89)	(1.09)	(.94)

Table 3

Table of means for the persuasiveness composite measure broken out by domain and decisional cohesion (collapsed across framing) with totals

	10 out of 10	9 out of 10	8 out of 10	7 out of 10	6 out of 10	Total
	M	M	M	M	M	M
	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
Health	4.63	4.52	4.34	4.45	4.41	4.47
	(.99)	(.95)	(1.00)	(.98)	(.96)	(.98)
Financial	4.23	4.42	4.16	4.10	4.27	4.24
	(.98)	(1.06)	(1.01)	(1.18)	(1.01)	(1.05)
Total	4.44	4.47	4.26	4.28	4.33	4.36
	(1.00)	(1.01)	(1.00)	(1.09)	(.98)	(1.02)

Table 4

Table of means for the behavioral intentions measure broken out by domain, framing, and decisional cohesion

	10 out of 10	9 out of 10	8 out of 10	7 out of 10	6 out of 10
	M	M	M	M	M
	(SD)	(SD)	(SD)	(SD)	(SD)
Health					
Gain Frame	4.36	4.45	4.40	4.54	4.78
	(1.68)	(1.49)	(1.71)	(1.53)	(1.53)
Loss Frame	4.78	4.59	4.32	4.62	4.59
	(1.61)	(1.64)	(1.56)	(1.56)	(1.42)
Financial					
Gain Frame	4.10	4.27	4.06	4.00	4.15
	(1.47)	(1.42)	(1.58)	(1.76)	(1.59)
Loss Frame	4.15	4.29	4.13	4.32	4.14
	(1.45)	(1.47)	(1.50)	(1.51)	(1.48)

Table 5

Table of means for the behavioral intentions measure broken out by domain and decisional cohesion (collapsed across framing) with totals

	10 out of 10	9 out of 10	8 out of 10	7 out of 10	6 out of 10	Total
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Health	4.59 (1.65)	4.52 (1.56)	4.36 (1.64)	4.59 (1.54)	4.66 (1.47)	4.55 (1.57)
Financial	4.12 (1.46)	4.28 (1.44)	4.10 (1.54)	4.14 (1.66)	4.14 (1.54)	4.16 (1.53)
Total	4.37 (1.58)	4.40 (1.50)	4.23 (1.59)	4.37 (1.62)	4.40 (1.53)	4.35 (1.56)

Table 6

Table of means for the information seeking measure broken out by domain, framing, and decisional cohesion

	10 out of 10	9 out of 10	8 out of 10	7 out of 10	6 out of 10
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Health					
Gain Frame	4.14 (1.78)	3.80 (1.82)	3.54 (1.86)	3.77 (1.70)	4.08 (1.84)
Loss Frame	3.92 (1.78)	3.85 (1.71)	3.75 (1.72)	3.83 (1.56)	3.85 (1.67)
Financial					
Gain Frame	4.12 (1.54)	4.01 (1.59)	3.82 (1.79)	3.82 (1.84)	3.90 (1.74)
Loss Frame	4.13 (1.58)	3.84 (1.65)	3.85 (1.61)	3.98 (1.66)	3.84 (1.61)

Table 7

Table of means for the information seeking measure broken out by domain and decisional cohesion (collapsed across framing) with totals

	10 out of 10	9 out of 10	8 out of 10	7 out of 10	6 out of 10	Total
	M	M	M	M	M	M
	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
Health	4.02	3.83	3.64	3.81	3.95	3.85
	(1.78)	(1.76)	(1.80)	(1.61)	(1.75)	(1.74)
Financial	4.12	3.92	3.83	3.89	3.87	3.93
	(1.55)	(1.62)	(1.70)	(1.76)	(1.67)	(1.66)
Total	4.07	3.87	3.74	3.84	3.91	3.89
	(1.67)	(1.69)	(1.75)	(1.69)	(1.71)	(1.70)

Table 8

Table of means for the information seeking reason measures (Reason1 = "I want to learn more about the research behind the recommendation"; Reason2 = "I do not trust the recommendation by this organization of experts"; Reason3 = "There might be exceptions to the general rule, which I would like to know about"; Reason 4 = "There might be other options that I would prefer to use.")

	Reason1	**Reason2**	**Reason3**	**Reason 4**
	M	M	M	M
	(SD)	(SD)	(SD)	(SD)
Health	4.53	3.38	4.59	4.61
	(1.645)	(1.322)	(1.464)	(1.418)
Financial	4.45	3.72	4.77	4.94
	(1.639)	(1.320)	(1.342)	(1.256)

Figure 1

Means for the persuasiveness composite measure by domain, framing, and decisional cohesion
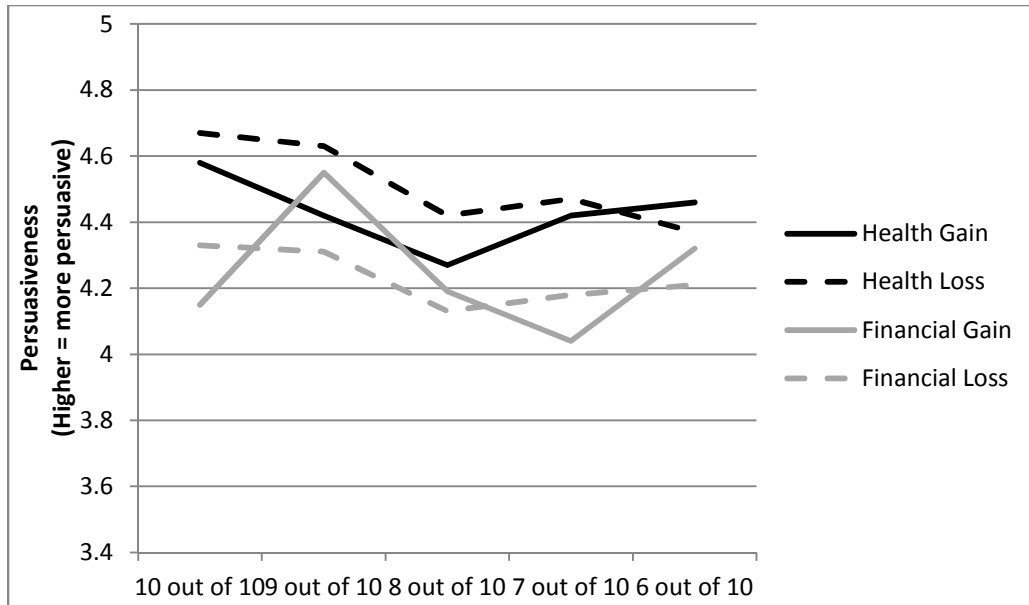
Figure 2

Means for the persuasiveness composite measure by domain and decisional cohesion (collapsed across framing)
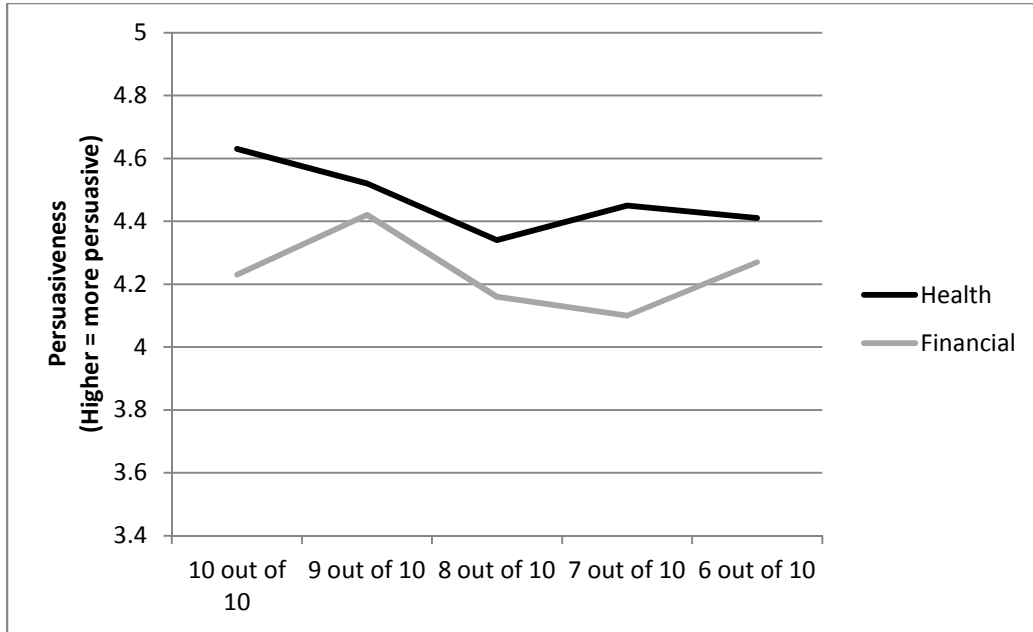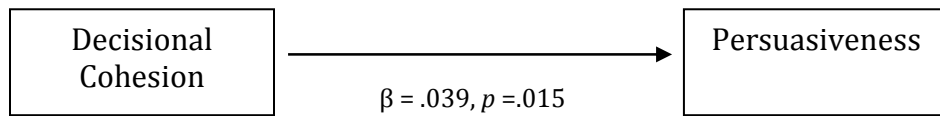
Figure 3

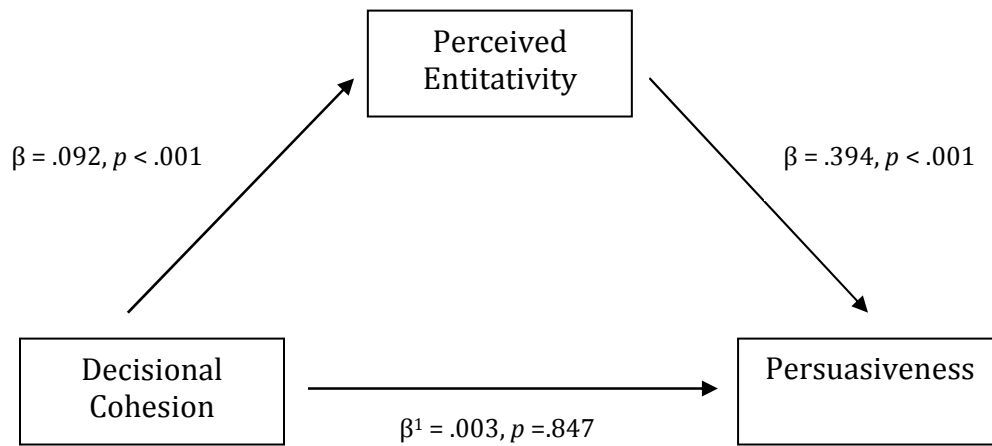*Depiction of entitativity as a mediator*

a) Direct path

Decisional Cohesion	$\xrightarrow{\beta = .039, p = .015}$	Persuasiveness

b) Mediation path

```
                          Perceived
                         Entitativity
         β = .092, p < .001              β = .394, p < .001

  Decisional                                    Persuasiveness
   Cohesion       β¹ = .003, p = .847
```


Sobel Test, $z = 4.98$, $p < .001$

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Figure 4

Means for the behavioral intention measure by domain, framing, and decisional cohesion
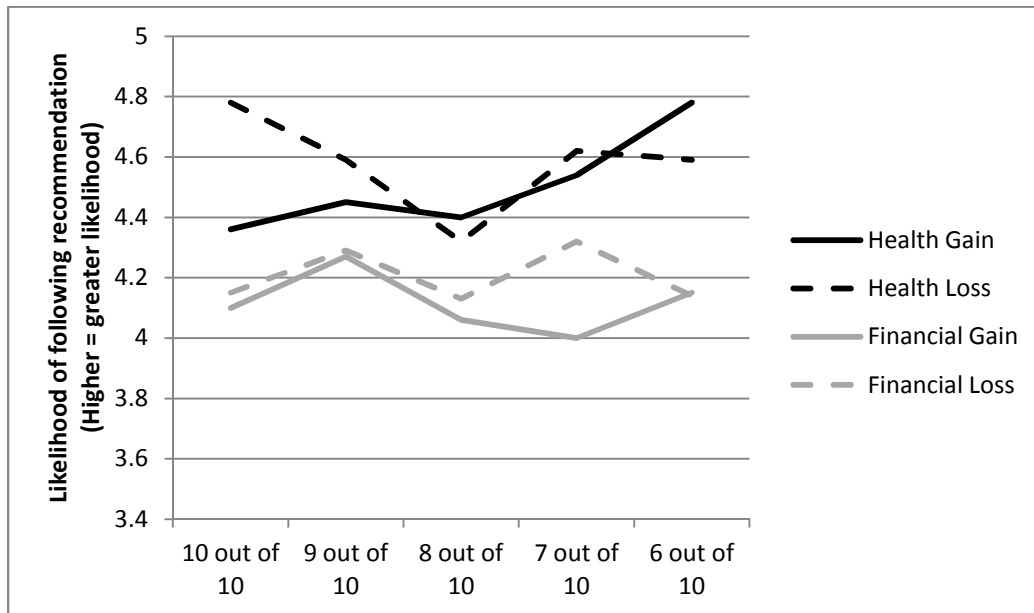
Figure 5

Means for the behavioral intention measure by domain and decisional cohesion (collapsed across framing)
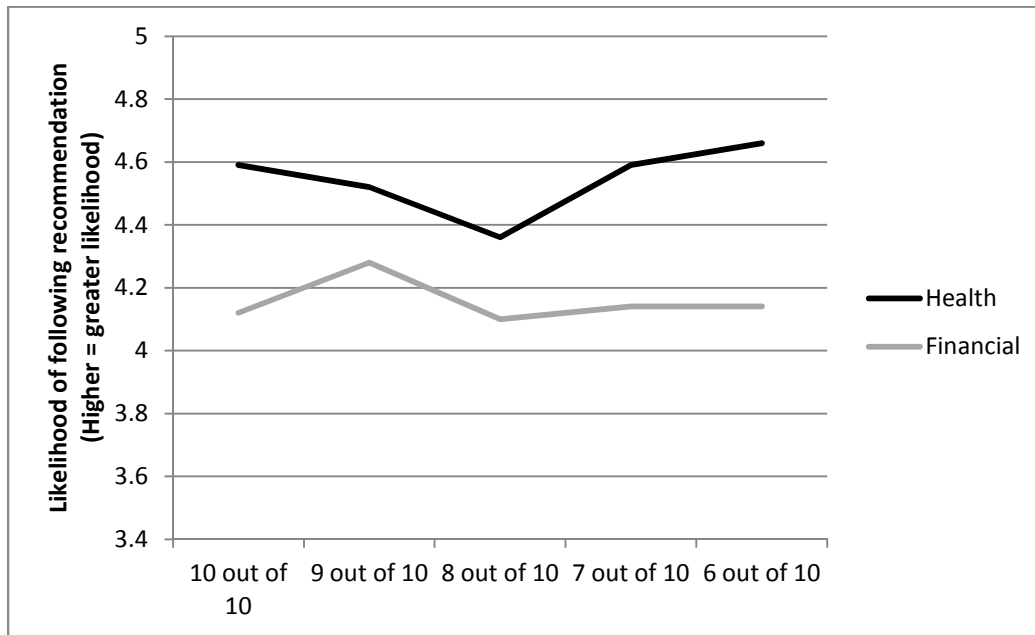
Figure 6

Means for the information seeking measure by domain, framing, and decisional cohesion
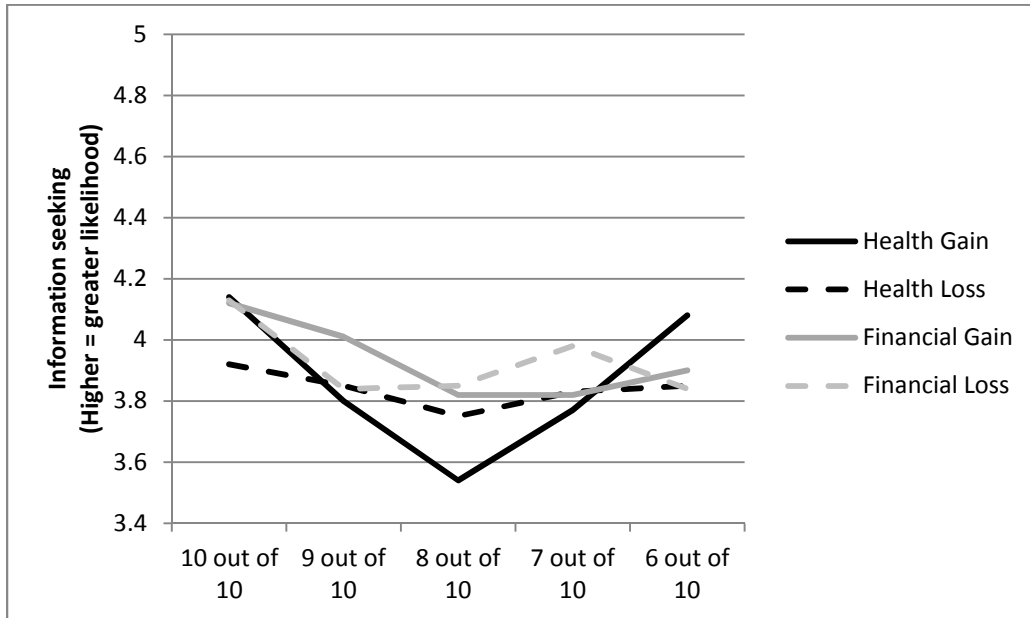
Figure 7

Means for the information seeking measure by domain and decisional cohesion (collapsed across framing)
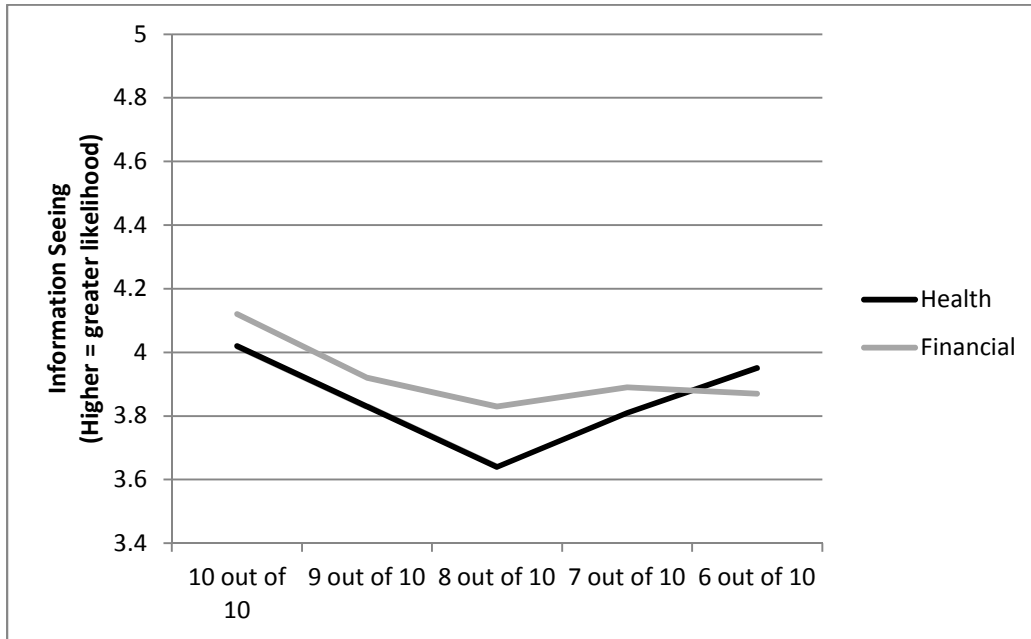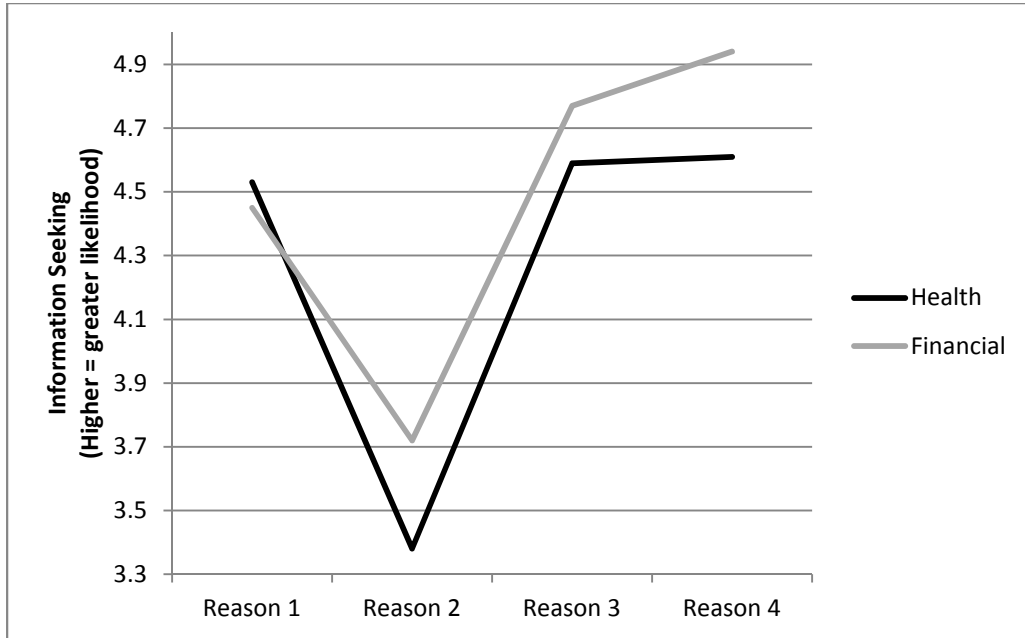
Figure 8

Means for Information Seeking Reason measures (Reason1 = "I want to learn more about the research behind the recommendation"; Reason2 = "I do not trust the recommendation by this organization of experts"; Reason3 = "There might be exceptions to the general rule, which I would like to know about"; Reason 4 = "There might be other options that I would prefer to use.")

APPENDIX A

STUDY MATERIALS

Directions: (All Conditions)

Various organizations are frequently making recommendations to the public. We are interested in evaluating your perceptions of these types of recommendations. The following provides some information about an organization and its recommendation. Please read the provided information and then answer the questions that follow.

Scenario 1: Health Recommendation

Expert group information (manipulating decisional cohesion)

An organization of health experts has made a recommendation to the public. The organization set up a panel of 10 experts to review the relevant research on the issue and vote in order to determine their recommendations. The following is their current recommendation **which 10 out of 10** of the experts voted in favor of:

> Other conditions: The passage is the same except the bolded material changes to either:
> - which 9 out of 10
> - which 8 out of 10
> - which 7 out of 10
> - which 6 out of 10

Recommendation (manipulating frame)

Gain Frame

"Our group of experts recommends reducing your consumption of sugar sweetened beverages, such as soda, to **maintain a healthy weight**."

Loss Frame
"Our group of experts recommends reducing your consumption of sugar sweetened beverages, such as soda, to **prevent an unhealthy weight**."

Scenario 2: Financial Recommendation

Expert group information (manipulating decisional cohesion)

An organization of financial experts has made a recommendation to the public. The organization set up a panel of 10 experts to review the relevant research on the issue and vote in order to determine their recommendations. The following is their current recommendation **which 10 out of 10** of the experts voted in favor of:

> Other conditions: The passage is the same except the bolded material changes to either:
> - which 9 out of 10
> - which 8 out of 10
> - which 7 out of 10
> - which 6 out of 10

Recommendation (manipulating frame)

Gain Frame
"Our group of experts recommends that college students acquire one, and only one, national credit card and continually pay the full balance each month to **build good credit**."

Loss Frame
"Our group of experts recommends that college students acquire one, and only one, national credit card and continually pay the full balance each month to **prevent bad credit**."

APPENDIX B

STUDY MEASURES

Persuasiveness Measures:

1) How persuasive was this recommendation?

1	2	3	4	5	6	7
Very Unpersuasive	*Unpersuasive*	*Somewhat Unpersuasive*	*Undecided*	*Somewhat Persuasive*	*Persuasive*	*Very Persuasive*

2) Please indicated your level of agreement with the following statement: **The group making this recommendation is an expert on the topic.**

1	2	3	4	5	6	7
Strongly Disagree	*Disagree*	*Somewhat Disagree*	*Neither Agree nor Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

3) Please indicated your level of agreement with the following statement: **The group making this recommendation is trustworthy.**

1	2	3	4	5	6	7
Strongly Disagree	*Disagree*	*Somewhat Disagree*	*Neither Agree nor Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Entitativity Measure:

4) To what extent do the experts deciding on the recommendation qualify as a cohesive, unified group?

1	2	3	4	5	6	7
Not Really a Group			*Undecided*			*Very Much so a Group*

Behavioral Intent Measure:

5) How likely are you to start following the recommendation?

1	2	3	4	5	6	7
Very Unlikely	*Unlikely*	*Somewhat Unlikely*	*Undecided*	*Somewhat Likely*	*Likely*	*Very Likely*

Additional Exploratory Measures:

6) How accurate do you believe this recommendation is?

1	2	3	4	5	6	7
Very Inaccurate	*Inaccurate*	*Somewhat Inaccurate*	*Neither Accurate nor Inaccurate*	*Somewhat Accurate*	*Accurate*	*Very Accurate*

7) How likely are you to seek additional information about this recommendation?

1	2	3	4	5	6	7
Very Unlikely	*Unlikely*	*Somewhat Unlikely*	*Undecided*	*Somewhat Likely*	*Likely*	*Very Likely*

8-11) Please rate the following reasons for why you would seek additional information about the recommendation:

- I want to learn more about the research behind the recommendation.
- I do not trust the recommendation by this organization of experts.
- There might be exceptions to the general rule, which I would like to know about.
- There might be other options that I would prefer to use.

Each of these statements was rated on the following Likert:

1	2	3	4	5	6	7
Strongly Disagree	*Disagree*	*Somewhat Disagree*	*Neither Agree nor Disagree*	*Somewhat Agree*	*Agree*	*Strongly Agree*

Manipulation Check:

12) How many experts voted in favor of making the recommendation?
    a. 6 out of 10
    b. 7 out of 10
    c. 8 out of 10
    d. 9 out of 10
    e. 10 out of 10

Demographic Questions:

13) Age: _____

14) Gender:

    _____ Male
    _____ Female

15) How would you describe your ethnicity?

    _____ White/Caucasian/European
    _____ Black/African-American
    _____ Hispanic/Latino/Chicano
    _____ Asian-American
    _____ Native American Indian
    _____ Middle Eastern
    _____ East Asian
    _____ South/South East Asian
    _____ Multiple Ethnicity
    _____ Other (Please specify): _____

APPENDIX C

IRB APPROVAL

To: Sau Kwan

From: Mark Roosa, Chair
Soc Beh IRB

Date: 08/03/2012

Committee Action: Exemption Granted

IRB Action Date: 08/03/2012

IRB Protocol #: 1207008072

Study Title: The Influence of Decisional Cohesion and Framing on the Persuasiveness of Expert Group Recommendations

The above-referenced protocol is considered exempt after review by the Institutional Review Board pursuant to Federal regulations, 45 CFR Part 46.101(b)(2) .

This part of the federal regulations requires that the information be recorded by investigators in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects. It is necessary that the information obtained not be such that if disclosed outside the research, it could reasonably place the subjects at risk of criminal or civil liability, or be damaging to the subjects' financial standing, employability, or reputation.

You should retain a copy of this letter for your records.