

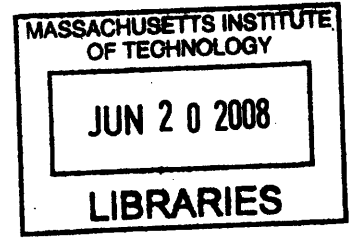
Testimonials versus Informational Persuasive Messages: The Moderating Effect of Delivery Mode and Personal Involvement

by

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Abstract

Health communications use factual information or/and personal testimonials to inform and influence individual decisions that enhance health. Increasingly, Web and other computer-based systems are being used to communicate with patients. This study aims to test the relative effectiveness of testimonials compared to simple informational health messages presented through different modalities, and to the recipients with different levels of involvement. Results of the three independent experiments demonstrate that testimonials are more persuasive when presented through the audio mode rather than when presented through the written mode. Also, the informational messages are more persuasive when perceived by individuals characterized by high rather than low involvement and high rather than low need-for-cognition. The results are explained in terms of the Elaboration Likelihood Model (ELM). The interactive effect of transportation (Green & Brock, 2004) and involvement on persuasion is further examined. The findings help in developing the more effective ways of computer-based health communication. The highest level of efficiency can be achieved if the appropriate media modality and message format are used for recipients with certain initial involvement or need-for-cognition.

Medical or health informatics is a rapidly growing discipline that is on the intersection between computer science, information science and health studies. It deals with optimizing methods of using technology to facilitate acquisition, storage, retrieval, and use of information in health and biomedicine. Consumer health informatics is the branch of medical informatics that focuses specifically on the consumers' (mostly patients') needs for information. It studies the methods of making information accessible to the customers, of facilitating doctor-patient communication and increasing the effectiveness of health promotions.

Developing of both short and long-term technology-based behavioral health intervention is an integral part of consumer health informatics. Behavioral interventions deal with promoting cognitions, motivation and behaviors that are associated with improving health. Computer-tailored health intervention is the effective and relatively low-cost method of providing consumers with individualized feedback and advice (Kroeze, Werkman, & Brug, 2006). About fifty per cent of all mortality causes in the United States are linked to social and behavioral factors such as smoking, diet, drug use and insufficient physical activity. Yet less than five percent of the money spent annually on U.S. health care is devoted to reducing the risks of these preventable conditions. Behavioral and social interventions offer great promise, however their potential has been relatively poorly used.

Increasingly, Web and other computer-based systems are being used to communicate with patients, to provide health information and to promote healthy behaviors. The effectiveness of those systems has been confirmed by many studies (Ammerman, Lindquist, Hersey, 2001). However, it is often hard to say, why a certain

intervention is more effective than another one. Typically, the effect of interventions is evaluated “globally”, without analyzing the specific strategies that lead to the substantial behavioral changes (Ammerman, Lindquist, Hersey, 2001; Kahn, Ramsey, Brownson et al, 2002). The goal of this research is to provide a detailed micro-analysis of several information delivery methods.

All behavioral interventions, including the computer-based are heavily relied on health communication theories about the effective and persuasive messaging and methods of information delivery. Health communication is “the study and application of strategically designed messages delivered through selected media to convey relevance health information to targeted audience” (Kreps & Viswanath, 2001, p. x). The typical goals of health communication are to motivate a person to reduce risk (Werch, Grenard et al., 2006), to encourage screening and control (Rimer & Glassman, 1999), to increase the treatment adherence (Lerman et al., 1992), and so on. Effective communications can motivate people to engage in behaviors that will improve their health and enhance their quality of life.

Health communications are substantially based on delivering persuasive messages about health and safety behaviors. Various persuasiveness techniques are employed to convince message recipients to stop smoking, to practice safe sex, or to follow a particular diet.

One of the commonly used methods of information delivery in health communication is testimonial assertions or exemplars. Testimonials may include a personal story, a description of an individual experience, or a personal opinion. In a typical example of testimonial, a main character tells a story of his or her personal

successful experience and directly or indirectly encourages the audience to follow her example; e.g.: “I began managing my eating habits four years ago. To me, the most rewarding thing is that I was able to lose weight and keep it off since my first semester.”

An alternative health communication technique is presenting factual information such as expository reports of events, expressing professional opinions or providing statistical evidence (Reinard, 1988). Most persuasion researchers have focused almost exclusively on factual or informational persuasive messages, whereas many communication and health practitioners widely exploit testimonials and anecdotal evidence messages (Slater, 2002).

The relative effectiveness of each type of communication (where effectiveness refers to persuasiveness, attitude change, and behavioral compliance) has recently been investigated in literature, but the issue is still unresolved (see Baesler & Bargo, 1994 for a brief review). Some studies found testimonials to be more persuasive than factual and statistical information (Brosius & Bathelt, 1994); other studies found the opposite to be true (e.g., Dickson, 1982). Many factors, including vividness (Baesler & Bargo, 1994), emotional absorption (also labeled “transportation” degree) (Green & Brock, 2000), and message-value congruency (Slater & Rouner, 1996), were found to influence the relative persuasiveness of testimonials and informational messages.

Many studies that investigated the relative persuasiveness of testimonials and factual information focused mainly on the message content (Baesler & Bargo, 1994; Brosius & Bathelt, 1994; Slater & Rouner, 1996; but see Block & Kleer, 1997 for the effect of self-efficacy). In this research I focus on the recipient part of communication as well. The primary goal of this study is to show that the testimonial and pure informational

message may be more or less effective depending on recipient's involvement, and also the modality by which the message was delivered (i.e., audio versus written message).

Personal involvement

Personal involvement has long been recognized as a primary factor that influences persuasion. According to the Elaboration Likelihood Model (ELM) (Petty & Cacioppo, 1979, 1979b), a recipient can be influenced by message content through one of two routes of persuasion: central or peripheral. When the route of persuasion is central, a recipient is influenced primarily by rational factors and information relevant to the message content. For example, while reading a message about a new diet, a recipient may consider whether the diet is healthy, if the diet's effectiveness is sufficiently supported by statistical evidence, whether the arguments are strong and logical, and if the source of information is reliable and can be trusted. When the route of persuasion is peripheral, other factors may influence a recipient's opinion. For the same diet message a recipient may consider source attractiveness, strength of emotional appeals (e.g., "Wow! It worked great!"), how enjoyable the message is, and if reading the message makes her feel happier.

Personal involvement is an important factor in determining the route of persuasion (Petty & Cacioppo, 1979a; Petty, Cacioppo, & Goldman, 1981). Although there is a general agreement that involvement determines the recipients' motivation and attention to the topic (Kruglanski, Chen et al., 2006), it can be and has been operationally defined differently in various studies. For example, the involvement was operationalized as "personal relevance" (Johnson & Eagly, 1989, Petty & Cacioppo, 1979b, Petty, Cacioppo, & Goldman, 1981; Schul & Knapp, 1984; Sorrentino, Bobocel et al., 1988) and was induced by a reward expectation (Braverman, 2005). Whatever

operationalization was used, those in the high involvement condition paid more attention to argument quality and were less affected by heuristic thinking.

For medical interventions, involvement may be more of an individual rather than a situational factor. The importance of tailoring the message to specific characteristics of a recipient has long been recognized (see Rimer & Kreuter, 2006 for a brief history and review). Medical and health interventions also target a very different audience in terms of personal involvement. The current research makes a basic distinction between individuals who believe it is important to change their behavior (diet or alcohol drinking) and those who do not consider their current state to be a problem. This distinction may be compared to a distinction made by the stage-of-change model (Prochaska, DiClemente, & Norcross, 1992) between the precontemplation and other stages of behavior change. The goal of this research is to understand how an individual's initial readiness to change their behavior (and therefore his or her involvement with a message topic) predicts the individual's response to an informational reports versus a testimonial persuasive message.

Rational decision suggests that information based on aggregated reports, which are more systematic and released by a credible source (as factual information often is), should be more persuasive compared to information based on a single piece of evidence (like a testimonial) (Baesler & Burgoon, 1994). The validity of factual information can be regarded as high relative to the testimonials (Brosius & Bathelt, 1994). However, many researchers found that single-report evidence, a vivid exemplar, or a testimonial were more persuasive than statistical evidence (Brosius & Bathelt, 1994). This suggests that the persuasive effect of testimonials is based not on systematic, but rather on heuristic thinking. The theory of exemplification (Zillmann & Brosius, 2000) also states that the

effect of testimonials (or exemplars) is based on cognitive shortcuts such as availability and representativeness heuristics. The theory maintains that testimonials are very efficient in public media because individuals typically do not engage in extensive cognitive processing of media messages. The following questions can then be asked: What if individuals do engage in extensive message processing? Will this affect the persuasive power of testimonials versus fact-based informational messages?

As a factor that determines the likelihood of cognitive processing, personal involvement can be an important moderator that explains the comparative effectiveness of fact-based informational versus testimonial messages. Reliance on heuristics (as in testimonials) influences persuasion especially when it occurs through a peripheral route. On the contrary, taking factual information into account is more characteristic of the central route of persuasion. This might be compared to the effect of message strength on persuasion. In the paper of Petty, Cacioppo & Goldman (1981) the difference between strong and weak message was described as follows: “the strong version of the message provided persuasive evidence (statistics, data, etc.) In contrast, the weak version of the message relied more on quotations, personal opinion, and examples to support its position.” (p. 850). According to the ELM, “strong” messages are more convincing when the central route of persuasion is activated. Whereas, when the peripheral route is activated no effect of message strength is usually found. One can thus hypothesize that when personal involvement is high and consequently the central route of persuasion is exploited, informational message will be more persuasive than testimonials. However, when personal involvement is low and a peripheral route of persuasion is used; the testimonial message will be more or equally persuasive compared to the informational message.

Delivery modality

Another factor that can moderate the effectiveness of testimonial versus fact-based informational message is the delivery modality. The majority of studies that investigated persuasion including those that compared testimonial stories and fact-based information (Green & Brock, 2002) dealt only with written forms of a message. However, the same message can be delivered through a multitude of modalities. For example, it can be presented as a text (written mode) or as a recording (audio mode).

Bathelt (1994) compared the effect of radio versus textual message presentation on the perceived distribution of opinions. It was hypothesized that the effect of exemplar on judgments would be greater in radio presentations compared to print presentations. The author suggested this because radio exemplars can be more vivid than exemplars in print (*ibid.*). However, this hypothesis was only partially supported.

Although indeed some researchers find no difference between message modes (McGinnies, 1965, Tannenbaum & Kerrick, 1954), others have reported that modality can affect persuasion both alone (Haugh, 1952; Knower, 1935) and in interaction with other variables (e.g., source credibility and argument quality) (Andreoli & Worchel, 1978; Booth-Butterfield & Gutowski, 1994; Chaiken & Eagly, 1983; Worchel, Andreoli, & Eason, 1975). Studies consistently show that message modality affects message processing. Print or written modality makes systematic message processing more likely, whereas the effect of peripheral or heuristic cues is more pronounced when the message is delivered through audio or video mode (Andreoli & Worchel, 1978; Booth-Butterfield & Gutowski, 1994).

According to the ELM, those recipients who use a peripheral route of persuasion should be more affected by heuristic cues than the recipients who use a central route of

persuasion. Hence, low-involved individuals are expected to be persuaded more by an audio message than by a written text. At the same time, highly involved individuals should be less affected by the modality. Moreover, one can expect that the testimonial form of the message will be more persuasive when recorded rather than just written, because the additional emotional information can be conveyed by a speaker's tone of voice potentially increasing transportability and vividness (Bathelt, 1994) of a testimonial story when spoken rather than written.

Study 1

For the first study I composed a persuasive message about drinking water to lose weight. The topic was chosen because people vary significantly in the degree to which the topic of weight loss is relevant to them. Drinking water also seems like plausible and easy-to-follow advice. Pure informational and testimonial versions of the same message were prepared in both written and audio format. The formal (informational) text looked like a standard public-oriented health promotion communication (e.g. those available on WebMed website). The testimonial version presented a personal story of a student who tried drinking a large amount of water and lost weight. Participants reported to what degree weight loss was important to them, and to what degree they were persuaded by the message. The following hypotheses were stated:

Hypothesis 1. Participants who report being highly motivated to change their diet will be more persuaded by the informational message, whereas participants who report being low in motivation to change their diet will be more persuaded by the testimonial.

Hypothesis 2. Participants who report being motivated to change their diet will be equally persuaded by the audio and written versions of the message, whereas participants who report being low in motivation to change their diet will be more persuaded by the audio message.

Hypothesis 3. A testimonial will be more persuasive in the audio mode than in the written mode.

Method

Participants

The experiment was advertised on several social psychological Web sites and communities.¹ The experiment was described as an online research about “weight management.” 203 female and 37 male volunteers completed the surveys and were exposed to the message for more than 30 seconds.²

Procedure

In the recruitment ad, participants were asked to visit a certain Web site where the experiment homepage was located. After providing an online consent, participants filled out an Involvement Assessment inventory. Participants were then automatically redirected to the next page, where they were randomly assigned to one of four experimental conditions. The conditions were 2 (text vs. audio recording) X 2 (informational versus testimonial). Audio recordings were prepared in both male and female versions. Male participants always heard a male voice version only, and female participants always heard a female voice version only. The time of message exposure was recorded to keep track of those participants who skipped the message. Participants were instructed to click the “next” button after they finish reading the message or hearing the

end of the recording. They then filled out the Persuasion Assessment tool. The final page contained a thank-you and debriefing message.

Materials and manipulations

Messages. Two versions of the persuasive message were created. Each version advocated drinking eight glasses of water daily to reduce weight and gave some practical advice on how to maintain this diet. Both texts contained about 460 – 480 words; the recorded text lasted about two minutes. The informational version was written in an impersonal, medical professional manner and did not include a particular story. Participants were instructed to read (or to listen) to a message. The first paragraph began as follows:

Incredible as it may seem, water is quite possibly the single most important catalyst in losing weight and keeping it off. Although most of us take it for granted, water may be the only true "magic potion" for permanent weight loss! For years, drinking water has been recommended for weight loss -- despite the fact that it satisfies thirst and not hunger...³

Large portions of this message were taken from the official WebMD Web site (<http://www.webmd.com>). Despite no claim that the information given in the message came from a trusted medical source, precautions were taken to make sure that the messages contained no deceptive or misleading information.

The testimonial version contained the same information; however, it was presented as a story. Participants were instructed to read (or listen to) a story about Steve (Susan), a student who “agreed to share his (her) experience with us.” The first paragraph began,

All through high school I battled with my weight. I tried different diets and none of them really helped. Even if I

managed to lose some weight I couldn't keep it off. Once, a friend of mine gave me some advice. Water! Drink plenty of cold water. You can hardly believe it, she said, but cold water can actually burn calories. I wasn't convinced at first. Why drink water when soda tastes so good?...²

Modes of delivery. Written and audio versions were created for each message, using male and female voices. Same male and female actors read the testimonial and informational messages. Actors were instructed to read the informational version in a professional voice, and to read the testimonial version in a less formal, warm, and “story-like” manner.

Involvement Assessment. Two items were constructed to assess a participant's level of involvement. Participants indicated on a 1 – 5 scale.

1. How important is it for you to change your diet? Scale: 1 (*not important at all*) - 5 (*very important*)
2. Are you happy with your weight? Scale: 1 (*not happy at all*) – 5 (*absolutely happy*)

Answers to these questions were averaged (with the second item reversed) to obtain a single involvement score for each participant. Cronbach's alpha for two items was .72 . Participants indicated their age and gender and also if they exercised routinely. In addition, participants were asked if they were overweight.

Persuasiveness assessment. Five 5 – point Likert scale items were constructed to assess the persuasiveness of the message in terms of: 1) message evaluation (e.g., Do you believe the arguments given in the message were strong or weak?), 2) agreement with the message statement (e.g., Do you believe drinking water can help to lose weight?), and 3)

behavioral intentions (e.g., Do you feel you want to start drinking more water now?). The scores were averaged to obtain a single persuasiveness score for each participant. The Cronbach's alpha for these five items was .87. Two additional questions asked how difficult to understand and how interesting the message was. Answers to these items were analyzed separately.

Results

Average age of participants was 25.54 years. No effects of gender were found; therefore the gender will not be discussed in the further analysis.

Involvement assessment

The $M = 2$, $SD = 1.01$. The median split (median = 2) was taken to define "high" and "low" involved participants, resulting in 113 participants in the high involved category and 121 participants in the low involved category⁴.

A 2 (informational message vs. testimonial) X 2 (written vs. audio channel) X 2 (high vs. low involvement) ANOVA was conducted to indicate the effects of independent variables on persuasion.

Main effects

The main effect of involvement was found. Participants who were more interested in changing their diet (and less happy about their weight) were also more persuaded by the message across the message type and modality conditions, $F(1,226) = 20.33$, $p < .01$, $d = .58$.

In general, the audio message was more convincing than the written message, $F(1,226) = 7.98$, $p < .01$, $d = .37$.

No other main effects were found.

Interaction effects

A marginal interaction effect of message type and involvement on persuasion was found, $F(1,226) = 2.95, p < .09, d = .22$. As predicted by hypothesis 1, highly involved participants were more persuaded by the informational message than by the testimonial (M informational = 5.19, $SE = .2$ vs. M testimonial = 4.8, $SE = .18$); whereas low-involved participants were more persuaded by the testimonial than by the informational message (M testimonial = 4.4, $SE = .19$ vs. M informational = 4, $SE = .16$) (see figure 1).

A predicted interaction effect of involvement and modality on persuasion was found, $F(1,226) = 10.74, p < .01, d = .42$. As expected in hypothesis 2, low-involved participants were more persuaded by the audio than by the written message (M audio = 4.75, $SE = .18$ and M written = 3.75, $SE = .17$), whereas highly involved participants were equally persuaded by both messages independent of the modality ($M = 5, SE$ written = .21, SE audio = .17) (see figure 2).

Also, as predicted by hypothesis 3, there was found a significant interaction effect of message type and modality on persuasion, $F(1,226) = 9.358, p < .01, d = .47$. When delivered through a textual modality, the informational message was more persuasive than the testimonial (M informational = 5.2, $SE = .2, M$ testimonial = 4.6, $SE = .15$); however, when presented through an audio mode the testimonial message elicited higher persuasion (M testimonial = 4.6, $SE = .18$, vs. M informational = 4.18, $SE = .2$) than the informational message (see figure 3).

Other Dependent variables

A post-hoc test showed that there were no main effects of message type or modality on how interesting or difficult the message seemed to be to the recipients. However, when the message was presented in an audio format, the informational message was found to be more difficult to understand than the testimonial, $F(1, 226) = 3.96, p < .05, d = .42$. No other effects were found.

Discussion

Study 1 showed that participants who reported high readiness to change their diet were more convinced by the informational message; whereas participants who presumably did not care about their diet were more convinced by the testimonial message. This result can be easily interpreted in terms of the ELM. According to the ELM, a person who is not motivated to pay close attention to a message relies mainly on peripheral rather than on central (topic-relevant) information. A testimonial message contains a great deal of peripheral information that appeals to emotions rather than to rational thinking. The main character of a testimonial story is easy to identify with even if he/she is not the most reliable source of information. The information given in a testimonial form by definition relies on a single source rather than on aggregated statistical data. All this makes a testimonial message less convincing to people who are likely to elaborate the information carefully, through a central route of persuasion. However, the same characteristics make a testimonial message more convincing for people who elaborate the message superficially, through a peripheral route of persuasion.

Another factor that was found to influence message persuasive power was the delivery mode. The same information can be presented to a recipient as a written text or

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as an audio recording of the same text. In contrast to the audio recording, the written text can be carefully elaborated and scrutinized (Chambliss & Garner, 1996). However, low-involved recipients who did not perceive the weight management topic to be personally relevant did not benefit from the possibility to elaborate the message. They were actually more convinced by the audio recording than by the written text. This may be explained by the fact that audio information contained more heuristic cues (Andreoli & Worchel, 1978; Booth-Butterfield & Gutowski, 1994) and those cues had stronger impact on the individuals who were not motivated enough to read the message carefully. Those participants who perceived the topic as personally important were not affected by the way the message was presented, whether it was a written text or an audio recording.

It was also found that the informational message was more convincing if delivered through the written mode. This is in concordance with the view that written mode provides an opportunity to elaborate the message carefully that is especially beneficial for the high-involved participants.

It is also worth noting that being overweight alone did not predict the level of persuasiveness, neither by itself nor in interaction with other independent variables (message type and modality). Counterintuitively, those participants who reported being overweight were not the same who declared that changing their diet was important to them. This further supports the view that it is high motivation to elaborate the message, not its relevance per se that determines the level of information elaboration.

Study 2

The results of Study 1 have demonstrated that individuals who are motivated to elaborate a persuasive message tend to be more convinced by a informational message, delivered as a written text. Study 2 was conducted to pursue two goals: First, to investigate the role of *transportation* in the fact-based informational and testimonial persuasion; and second, to replicate the results of Study 1 and to expand on them beyond the specific topic of diet and weight management.

Transportation was introduced by Green and Brock (2000) and defined as a level of “emotional absorption”. According to the transportation model (Green, 2006; Green & Brock, 2000, 2002) an emotional transportation or “immersion” into a story is a primary mechanism of narrative persuasion. Individuals who identify deeply with the story characters easily imagine themselves in circumstances similar to those described in a story and feel emotionally involved in the story’s events. Those “highly transported” recipients are more likely to shift their opinion toward the message content compared to recipients who are not transported by a message. Transportation was shown to be positively correlated with persuasion, i.e., a recipient who is deeply emotionally absorbed by a message also tends to be more convinced by the message arguments (Green & Brock, 2000). The researchers consider transportation to be the primary mechanism that underlies the effect of narrative messages (or stories). Narrative stories typically induce more transportation than dry facts (Green & Brock, 2002). Transportation is also related to the message enjoyment (Green & Brock, Kauffman, 2004). It is important that transportation differs from personal involvement and not related to need-for-cognition (Green & Brock, 2002).

According to the ELM, emotions can affect persuasion on all levels of elaboration: high, moderate, and low (Petty, Fabrigar, & Wegener, 2002). However, the most immediate and direct effect of emotional absorption will probably occur when the likelihood of elaboration is low rather than high. One can assume then that the correlation between transportation and persuasion should thus exist only when the likelihood of elaboration is low, i.e., for the low-involved recipients but not for the highly involved individuals. This hypothesis will be tested in Study 2.

The topic chosen for the second study was college students' drinking behavior. It differs from the topic in Study 1 (diet) because the persuasive message advocates a preventive rather than promotive behavior. The message in Study 1 tried to convince the audience to start a new behavior (drink more water), while the message in Study 2 was composed to convince the audience to stop a dangerous behavior (moderate drinking). In order to be able to generalize the findings for different health interventions, it is important to determine if the persuasive mechanism actually works similarly for different types of persuasion.

The message about drinking was targeted specifically toward college students; therefore, only college students were eligible to participate in the study.

Overall, the following hypotheses were stated:

Regarding persuasiveness:

Hypothesis 1. Participants who report being highly interested in changing their drinking habits will be more persuaded by the informational message, whereas participants who report being less interested in changing their drinking habits will be more persuaded by the testimonial message.

Hypothesis 2. Participants who report being highly interested in changing their drinking habits will be equally persuaded by the audio and written versions of the message, whereas participants who report being uninterested in changing their drinking habits will be more persuaded by the audio message.

Hypothesis 3. The testimonials will be more persuasive in the audio mode than in the written mode.

Regarding transportation:

Hypothesis 4. A testimonial message will be more persuasive in the audio mode than in the written mode.

Hypothesis 5. Level of transportation will be higher for the testimonial messages.

Hypothesis 6. Level of transportation will be positively correlated with persuasiveness only for those participants who report being less interested in changing their drinking habits.

Method

Participants

The experiment was advertised on several social psychological Web sites and college student communities. The experiment was described as an online research about “college drinking.” The inclusion criteria were as follows: 1) being a college student, 2) completing the surveys, 3) reported to drink at least occasionally (assessed through RAPI score > 6), and 4) being exposed to a message for longer than 30 seconds. This resulted in 118 valid data points for the analysis.

Procedure

The procedure in the first study was followed. Several additional measures were included. After submitting the online consent form, each participant was asked if s/he was an undergraduate student. Participants next filled out a RAPI questionnaire that is a standard measure of alcohol dependence for teens and college students. Participants next filled out the Involvement assessment modified after the same inventory in Study 1. Participants were then exposed to one of the four versions of a persuasive message. Finally, they filled out the Persuasive assessment that also included 10 items of the Transportation level assessment. All other measures and analysis were identical with those in Study 1.

Materials and manipulations

Messages. As in Study 1, two versions of the persuasive message were created. Each version advocated moderating alcohol drinking during college parties. Both texts contained about 460 – 480 words and lasted about 2.5 minutes when recorded.² Both texts contained the same information, although presented differently. For example, the informational message stated: “One of the serious problems with college drinkers is that few young adults consider their drinking risky or excessive and few attempt to regulate or “manage” their drinking.” While the testimonial stated: “Hi. My name is Steve. Like many of my friends, I used to drink a lot. Frankly, I was not really concerned with how much I drank and considered myself to be a light drinker...compared to my friends at least. I always thought I could drink and still be in control. “

Modes of delivery. Identical to Study 1.

Involvement assessment. One item was constructed to assess the level of involvement of the participants. Participants were asked to indicate on a 1 (not important

at all) – 7 (very important) scale: “How important is it for you to change your drinking habits?”⁵

Rutgers Alcohol Problem Index (RAPI) is a standard 23-item inventory aimed to indicate alcohol problems among teens and college students (BRFSS, 2005). Participants were asked to indicate how many times each of the listed behaviors or events had happened to them during the last three years while they were drinking alcohol or as the result of their alcohol use. The scale was marked: 0 = *never*, 1 = *1-2 times*, 2 = *3-5 times*, 3 = *6-10 times*, 4 = *more than 10 times*. The examples of behaviors and events were: “Neglected your responsibilities” and “Not able to do your homework or study for a test.” Chronbach’s alpha = .95.

Persuasiveness assessment. Five Likert scale items were constructed to assess the persuasiveness of the message in terms of 1) message evaluation (e.g., “Do you believe the arguments given in the message were strong or weak?”) 2) Agreement with the message statement (e.g., “Do you believe drinking too much alcohol can be dangerous?”) and 3) behavioral intentions (e.g., “Do you feel like moderating your drinking?”). For the intentions items, the option N/A — “I don’t drink at all” — was given. The scores were averaged to obtain a single persuasiveness score for each participant. Cronbach’s alpha = .80. Two additional questions were asked about how understandable and interesting the message was. Answers to these items were analyzed separately.

Transportation assessment. The 10-item scale was taken from Panel 1: General items, transportation scale presented by Green and Brock (2000). Participants indicated their agreement with the item statements on a Likert scale anchored from 1=very much to 7=not at all. The item examples were: “While I was reading the message, I could easily

picture the events in it taking place,” and “After finishing the message, I found it easy to put it out of my mind” (R). Chronbach’s alpha for the scale was .87.

Results

The RAPI scores ranged from 0 to 92, $M = 16$, $SD = 17.88$. Average age of participants was 19.8 years. There were 80 males and 107 females. The 69 participants who reported to be no or extremely light drinkers ($RAPI < 6$, lowest 30%) were excluded from the analysis. This resulted in 118 valid data entries for further analysis. No effects of gender were found; therefore the gender will not be discussed in the further analysis.

Involvement assessment

The $M = 2.4$, $SD = 1.11$. The median split (median = 2) was taken to define “high” and “low” involved participants, resulting in 56 participants in the high involved category and 62 participants in the low involved category⁴.

A 2 (informational message vs. testimonial) X 2 (written vs. audio channel) X 2 (high vs. low involvement) ANOVA was conducted to indicate the effects of independent variables on persuasion.

Main effects

There was no main effect of the message type. Both informational and testimonial messages were found to be equally convincing.

Participants who reported being more interested in changing their drinking habits were also more convinced by the message in general, $F(1, 110) = 11.074$, $p < .01$, $d = .62$.

Interaction effects

An interaction effect of message type and involvement on persuasion was found, $F(1,110) = 4.26, p < .05, d = .38$. As predicted by hypothesis 1, highly involved participants were more persuaded by the informational message than by the testimonial (M informational = 4.72, $SE = .2$ vs. M testimonial = 4.14, $SE = .19$); whereas low-involved participants were more persuaded by the testimonial than by the informational message (M testimonial = 4.00, $SE = .17$ vs. M informational = 3.61, $SE = .2$) (see figure 4).

Also, as predicted by hypothesis 3, an interaction effect of message type and modality on persuasion was found, $F(1,110) = 3.76; p < .06, d = .36$. The informational message was more convincing when delivered through the written than through the audio mode (M written = 4.57, $SE = .2, M$ audio = 3.85, $SE = .2$). However, the testimonial message was equally convincing when delivered through the audio mode compared to the written mode (M both = 4.00, SE written = .16, SE audio = .2) (see figure 5).

Transportation

As predicted by hypothesis 4, transportation scores were higher for the testimonial messages ($M = 3.7, SE = .18$) than for the informational messages ($M = 3.1, SE = .2$) across the modality condition, $F(1,110) = 4.62, p < .04, d = .41$. No effect of modality was found.

A significant positive correlation between transportation level and persuasion was found, $r(118) = .26, p < .01$. As predicted by hypothesis 5, however, this correlation occurred only for the low-involved participants; i.e., those who reported being unmotivated to change their drinking habits, $r(62) = .33, p < .01$. The correlation did not

occur for the highly involved participants, $r(56) = -.03, p = .82$. The difference between correlation coefficients was significant, $p < .05$.

Other dependent variables

No effect of the independent variables on difficulty in understanding the text was found. Participants evaluated the text as relatively easy to understand ($M = 2.5$) in all conditions.

Surprisingly, participants reported the informational message to be more interesting ($M = 4.5, SE = .23$) than the testimonial ($M = 3.34, SE = .20$), $F(1, 110) = 14.46, p < .01, d = .72$). This effect was especially pronounced when the message was delivered through the written mode ($F(1, 110) = 8.39, p < .05, d = .56$). The written informational message was rated as being the most interesting ($M = 5.16, SE = .33$).

Discussion

The results of Study 2 replicated the main results of Study 1. The informational message was more convincing for the highly involved participants than for the low-involved participants, whereas the testimonial message was perceived to be more convincing by the low involved participants than by the highly involved participants. Also, it was replicated that the written mode increased the persuasiveness of the informational message.

Hypothesis 2 stated that low-involved individuals would be convinced primarily by audio messages whereas highly involved individuals would be convinced primarily by written text. This was confirmed in Study 1 but not replicated in Study 2. Instead, all participants found the written text to be more convincing than the audio recording. This

implies that the effect of modality per se may not be strong enough to override the effects of other message characteristics, like being a testimonial or a informational message, for all message topics. This contradiction suggests that more investigation is necessary to understand the circumstances in which highly involved individuals become more influenced by audio versus written message format.

The alcohol problem index (RAPI score) did not predict the persuasion, neither by itself nor in interaction with other variables. This finding is parallel to the result in Study 1 that demonstrated similar absence of the effects of being overweight. Again, as in Study 1, it confirms that it is the motivation to process the message rather than the simple relevance of the message topic that produces the strongest effects on persuasion.

Study 2 also provides an important insight on the role of transportation in persuasion. Previous studies recognized transportation to be an important factor that determines persuasion (Green, 2006; Green & Brock, 2000). Transportation was found to be strongly associated with attitude change and persuasion (Green & Brock, 2000; Strange & Leung, 1999), especially for narrative messages. Green and Brock (2000) defined transportation as a processing that is “qualitatively different” from the traditional systematic/central versus heuristic/peripheral cognitive processing described in the dual-process models (Chaiken, 1980; Petty & Cacioppo, 1981). The current results complement the previous findings by demonstrating the interaction between transportation and cognitive elaboration. It was found that the impact of transportation is limited to those individuals who are not initially strongly involved with the message topic. Individuals whose initial motivation to elaborate the message is relatively high are less affected by the transportation level in their response to the persuasive message, at

least in cases where the overall transportation level is not very high. It should be noted that the testimonial stories used in this study were not particularly dramatic and probably did not exert extreme emotional absorption. Despite this, the level of transportation was significantly higher for the testimonial than for the informational message. Transportation did predict persuasion although only for individuals with a relatively low initial level of involvement. It may be that this moderating effect of involvement occurs only when the level of transportation is moderate rather than extremely high.

Surprisingly, in Study 2 participants found the informational message to be more interesting and not more difficult than the testimonial message. The opposite results were found in Study 1. This implies that other effects found in the study were not necessarily related to the level of interest exerted by the message and the perceived difficulty of the message. The interaction effects of individual involvement, message type, and modalities should be explained beyond the assumption that testimonial messages are simply more interesting and easier to understand.

Study 3

A plausible explanation for the results obtained in Study 1 and Study 2 is given by the Elaboration Likelihood Model (ELM). Individuals who are not concerned about their current behavior are presumably less motivated to process the message about changing this behavior. Testimonial messages contain a variety of *nonmessage* cues or peripheral and heuristic information, like vivid examples and emotional appeals, that are not as frequent (if they appear at all) in the informational messages. According to the ELM, these cues have more direct impact on individuals who are less involved in the message content and less likely to elaborate it in depth (Petty, Fabrigar, & Wegener, 2002).

There may be an alternative explanation for the same results. The findings are also consistent with the results of Slater and Rouner (1996), who showed that respondents rated messages with statistical evidence to be of higher quality but only when the message content was congruent with their initial values. However, when the message was incongruent with their initial values, respondents rated messages with anecdotal evidence to be of higher quality. This may be because testimonials are especially effective at overcoming resistance and reducing counterarguments. We may believe that people who did not initially want to change their behavior perceived the message to be counterattitudinal. Consequently, testimonials were more likely than factual evidence to reduce their counterarguments and were more persuasive for these individuals.

The goal of Study 3 was to look for additional support for the ELM interpretation by introducing an alternative variable (other than the initial motivation) that would affect the likelihood of message elaboration. This variable may be an individual's need-for-cognition. Need-for-cognition (NC) is a personality trait related to an individual's chronic tendency to enjoy thinking deeply about issues. It has been demonstrated to have similar effect on persuasion as do personal involvement (Cacioppo, Petty, & Morris 1983; Chaiken, 1987, Cacioppo & Petty, 1984). For example, high-NC individuals tended to be influenced by argument quality more than do individuals with low need-for-cognition (Petty & Cacioppo, 1986). Also, low-NC individuals have been shown to be more responsive to the likeability of the message source (Haugtvedt, Petty, & Cacioppo, 1992). Need-for-cognition presumably should moderate the persuasive power of testimonials and informational messages in the same way the initial readiness-to-change-behavior did. Therefore, the previous hypotheses are rephrased and predicted as follows:

Hypothesis 1. Participants who are high in the need-for-cognition will be more persuaded by the informational message, whereas participants who are low in the need-for-cognition will be more persuaded by the testimonial message.

Hypothesis 2. Level of transportation will be positively correlated with persuasiveness only for participants low in the need-for-cognition.

Also, the next hypothesis is expected to be replicated.

Hypothesis 3. A testimonial will be more persuasive in the audio mode, than in the written mode.

Study 3 tested the hypotheses using the diet messages created for Study 1.

Method

Participants

The recruitment procedure followed that in Study 1. Thirty one men and 127 women participated in the study.

Procedure

The procedure followed the procedure in the first study with an addition of the standard need-for-cognition scale. As in Study 2 the final persuasive assessment included 10 items of the transportation level assessment. All other measures, materials and analysis were identical with those in Study 1.

Materials

Need-for-Cognition assessment. NC has been assessed using a standard 18 –item Need-for-Cognition Scale (Petty et al., 1984). Items included "I really enjoy a task that involves coming up with new solutions to problems" and "The idea of relying on thought

to make my way to the top appeals to me." Respondents indicated, on 5- point Likert scales ranging from 1 (*extremely uncharacteristic of me*) to 5 (*extremely characteristic of me*) the degree to which statements on the scale characterized them. Cronbach's alpha = .92.

Result

Average age of participants was 27 years old. No effects of gender were found; therefore the gender will not be discussed in the further analysis.

Need-for-cognition (NC) assessment

The $M = 2.53$, $SD = .60$. The median split (median = 2.47) was taken to define participants with "high" and "low" need-for-cognition, resulting in 79 participants in each category.

A 2 (informational message vs. testimonial) X 2 (written vs. audio channel) X 2 (high vs. low NC) ANOVA was conducted to indicate the effects of independent variables on persuasion.

Main effect

A main effect of NC was found. Participants who were high in the NC were also more persuaded by the message across the message type and modality conditions, $F(1,150) = 6.65$, $p < .02$, $d = .42$.

In general, the written message ($M = 5.4$, $SE = .13$) was slightly more convincing than the audio message ($M = 5$, $SE = .16$), $F(1,150) = 4.42$, $p < .04$, $d = .34$.

No other significant main effects were found.

Interaction effects

A significant interaction effect of message type and NC on persuasion ($F(1,150) = 4.42, p < .04, d = .34$) was found. As predicted by hypothesis 1, the low-NC participants were more persuaded by the testimonial than by the informational message (M testimonial = 5.3, $SE = .20$ vs. M informational = 4.5, $SE = .26$); whereas the high-NC participants were equally persuaded by the informational and testimonial messages (M informational = 5.5, $SE = .18$ vs. M testimonial = 5.42, $SE = .18$) (see figure 6).

Also, as predicted by hypothesis 3, an interaction effect of message type and modality on persuasion was supported once again ($F(1,150) = 6.167, p < .02, d = .41$). When delivered through a written modality, the informational message was more persuasive than the testimonial (M informational = 5.49, $SE = .15$, M testimonial = 5.33, $SE = .23$). However, when presented through an audio mode the testimonial message elicited higher persuasion ($M = 5.41, SE = .17$) than the informational message ($M = 4.52, SE = .28$) (see figure 7).

Transportation

The average transportation level was 3.9 (1 to 7 scale), $SD = .72$. Contrary to the expectations, the transportation level was not higher for the testimonial than for the informational message, $p = .223$. However, as predicted, a significant positive correlation between transportation level and persuasion was found, $r(158) = .37, p < .01$. As predicted by hypothesis 2, however, this correlation occurred only for the low-NC

participants, $r(79) = .52, p < .01$. The correlation did not occur for high-NC participants, $r(79) = .12, p = .30$. The difference between the correlation coefficients was significant ($p < .001$).

Other dependent variables

Participants reported all messages to be relatively easy to understand ($M = 1.8, 1 - 5$ scale). However, a post-hoc test showed that the audio message was rated more difficult to understand ($M = 2.2, SE = .14$) than the written message ($M = 1.4, SE = .16$), $F(1, 150) = 6.39, p < .02$. Participants evaluated the text as relatively interesting to read ($M = 4.8, SE = .19$) in all conditions.

Discussion

The goal of Study 3 was to test the hypothesis that the persuasive effect of testimonials and informational messages will vary for the recipients who are low or high in the need-for-cognition. The results supported the hypothesis that individuals who are low in the need-for-cognition were more convinced by a testimonial than by informational message. Individuals high in the need-for-cognition were found to be equally convinced by the informational message and by the testimonials. In addition, it was also supported that the emotional absorption - or the transportation level - predicts the level of persuasion only for low-NC individuals. It is important to notice that the testimonials did not induce higher level of transportation than the informational messages did. This implies that the effect of the message type on persuasion cannot be explained by the transportation mechanism.

These results are in accordance with the results of the first two studies that demonstrated similar effect for the individuals with high versus low initial readiness to

change behavior. In the first two studies, it was assumed that the initial readiness to change behavior affects the likelihood to elaborate the message about this behavior. Low likelihood for message elaboration leads to the peripheral message processing. Individuals who process the message peripherally are more convinced by testimonial than by informational report. Low need-for-cognition is known to be related to the low likelihood of elaboration. The parallel results let us assume that low readiness to change behavior and low need-for-cognition both impact the persuasion process through the same mechanism by decreasing the likelihood of message elaboration.

Results of Study 3 once again found that the effect of testimonial versus informational report depends also on the delivery mode. Informational messages were most persuasive if written.

General Discussion

Tailored communication efforts use information about the characteristics of the groups or individuals and match the health promotion message to the recipients' background. The results of the three experiments may be applied to creating effective health communication tailored to individuals with various initial beliefs about the message topic and need-for-cognition.

The three experiments supported the hypothesis that testimonial or storytelling is more effective than expository or informational messages for those individuals who are not motivated to scrutinize the message either because they are initially not concerned about their current state or because they are low in the need-for-cognition. At the same time, factual or purely informative communication is more effective for individuals who are initially more concerned or generally high in the need-for-cognition.

What is the mechanism that may underlie the difference between the testimonials and purely informative messages? Previous researches name at least three major differences between typical testimonial and pure informative messages. Testimonials are generally more interesting and enjoyable (Nisbett & Ross, 1980; Salter, 2002), easier to read (Brosius & Bathelt, 1994) and more vivid (Taylor & Thompson, 1982). All these three factors, namely, enjoyment (Priester, Cacioppo, & Petty, 1996; Petty, Fabrigar, & Wegener, 2002), ease to read (Kruglanski and Thompson (1999a) and vividness (Wilson, Northcraft, & Neale, 1989) might serve as heuristic cues and increase persuasiveness when the message is peripherally processed. However, the participants in the current study did not find the present testimonials to be more interesting or easier to understand than the informational messages (vividness was not directly measured). Moreover, the results of the three studies showed that although all participants were almost equally persuaded by the testimonials, those who were highly motivated to scrutinize the message (either because of the initial motivation or because of the high need-for-cognition) were more persuaded by the factual information. This implies that it is not peripheral cues that become more appealing when the likelihood of elaboration is low, but central cues (e.g., importance of aggravating information or arguments' strength) become more salient when the likelihood of message elaboration is high. Further studies should be conducted to directly address this interpretation.

Three studies found conflicting results about the effect of modality on persuasion. In Study 1, audio modality was found to be more persuasive than the textual modality, whereas in Studies 2 and 3 the opposite was true. This implies that the effect of modality is more complicated and should be understood in interaction with other variables. Indeed,

what was consistent in all three studies was the interactive effect of delivering modality and a message type on persuasion. The results demonstrate that it is hard to determine the general prevalence of a written or an audio modality. However, the utterance (or a message delivered by voice) is more effective for a testimonial, whereas the textual format is more effective for informational information. This effect is mainly explained by the influence of modality on the informational message persuasiveness. In all three studies the informational messages were more persuasive when written. However, the delivery modality had only a trivial effect on the persuasiveness of the testimonial message. This may occur because the written text as compared to an utterance gives a recipient time to elaborate the message and to reexamine it for truth (Chambliss & Garner, 1996). Therefore, informational messages should significantly benefit from the written modality.

The results of Studies 2 and 3 provide an insight on the effect of “immersion into a story”—labeled by Green and Brock (2000, p.702) as *transportation*—on persuasion. The results support previous findings that transportation is a strong predictor of persuasion (Green & Brock, 2000). However, in both studies the effect of transportation on persuasion was limited only to initially low-involved or low-motivated individuals or individuals with low need-for-cognition. For the highly involved individuals and those with high need-for-cognition, no correlation between transportation and persuasion was observed. This may imply that the role of transportation is especially pronounced when a message is processed peripherally rather than centrally. It is interesting to compare this result with the findings of Escalas (2007) who found that the recipients were less affected by the argument quality when they were instructed to “imagine” being a character of the

commercial. The authors concluded that in this condition “transportation distracts attention away from weak arguments...” (ibid. p.425). Taken together the results of the current study and the results of Escalas (2007) may imply the multiple role of transportation in persuasion process. Similar to mood (Petty, DeSteno, & Rucker, 2001; Petty, Gleicher & Baker, 1991) and emotional intelligence (DeSteno & Braverman, 2002) transportation seems to impact persuasion through different mechanisms depending on the level of elaboration, and also affect the level elaboration per se.

On a practical level, the current results offer new possibilities to potential communicators. The findings suggest that if a communicator has to select between audio and written modalities, it is more effective to select the audio modality to deliver a success-story or a testimonial, and use a simple text to deliver factual information. Also, if the goal is to deliver a message to an audience consisting of individuals who are not currently concerned about their behavior and health (e.g., to attract student drinkers who are not concerned about their drinking patterns or to attract smokers who are not currently desiring to cease), a testimonial message may be the most effective way of communicating. Otherwise, if the audience consists primarily of individuals who are aware of their problem (e.g., overweight individuals who are motivated to lose weight, student drinkers who have requested help in changing their drinking habits), factual information may be more effective.

On a theoretical level, the study continues and expands on a series of investigations about the comparable persuasive effects of testimonial versus informational messages. It discovers moderating effects of two variables: modality of the message delivered and individual involvement operationally defined either as a readiness

to change current behavior or as need-for-cognition. The logical continuation of this line of research will be a further investigation into other modalities (e.g., video) or a combination of multiple modalities. Current research distinguishes between two principal types of message recipients: those who are concerned about their health or behavior and those who are not aware of any existing problems. For example, the stage-of-change (transtheoretical) model defines five stages of behavioral change that include people who have recently adopted new behavior and those who need to maintain the health practice. Further research will investigate the effects of each individual stage on attitude change, followed by an exposure to a testimonial or an informational message.

A possible limitation of the current study is that one of the three independent variables—*involvement*—was measured rather than manipulated. Therefore, one should exercise caution in interpreting the results for individual involvement. As with any correlational design, the interpretation of causality can be misleading. It is possible that individuals in the sample who were operationally defined to be highly involved also shared other characteristics that confounded with the measured involvement variable. However, even if the causality explanation is not completely validated, it is still very plausible in light of the existent predictions of the ELM. This interpretation finds even stronger support because individual involvement was measured in two very different ways (initial readiness to change behavior versus need-for-cognition). In any case, as shown in the current study, the individual differences serve as important predictors of the effectiveness of testimonial and factual information on persuasion. Further studies could manipulate the involvement variable to replicate the current findings and to validate the interpretation of results.

Another possible limitation is the use of only one testimonial and one informational message in each study. The specific language may produce unanticipated variations in the results (Jackson & Jacobs, 1983). However, it should be noted that the results of Studies 1 and 3 are consistent with the result of Study 2 that uses different messages. This consistency implies that the results might be valid beyond the specific language. However, testing more specific examples of testimonials and informational messages would be necessary in the future.

It should also be noted that the given results reflect the effects of various message features on message evaluation, message agreement, and self-reported behavioral intentions. Unfortunately, these measures, although important, do not always predict actual behaviors. Attitude accessibility and long-term stability, which are other important predictors of behavioral change (Fazio, Powel, & Williams, 1989), were not measured in this study.

One of the important methodological features of this study is that the message stimuli were presented online; participants' responses were also collected on the Web. Although relatively new, online data collection and stimulus presentation has become a widely accepted method of research that demonstrates high internal and external validity and reliability (see Krantz & Dalal, 2000, for review; Fraley, 2004). This particular methodology is especially beneficial in the context of the given research because it promotes the applicability of the results to the real-life situation. The Internet is becoming an increasingly popular media among professional health communicators. A plethora of Web sites are dedicated to providing health messages and distribution of health-related information. Some researchers have recognized the necessity of investigating computer-

mediated communication as a medium for communication and negotiation (Murphy et al., 2003; Wilson, 2005). Research that is intended to improve computer-mediated communication may benefit from the systematic comparison of various features of tenable communications. Given that contemporary people routinely utilize the Internet to search for all kinds of information, including information about diet, alcohol, and health in general, it is essential to investigate the persuasive effects of messages in a similar media environment.

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¹ The communities and Web sites are: <http://psych.hanover.edu/research/exponnet.html>, maintained by John Krantz; <http://www.socialpsychology.org/expts.htm>, maintained by Scott Plous.

² Nineteen participants who obviously skipped the message (were exposed for less than 30 seconds) were excluded from the analysis.

³ The full text messages are available from the author upon request.

⁴ Unequal number of people in the groups results from the high number of people whose scores were equal to the median.

⁵ It was decided to use a single-item measure to eliminate item redundancy and reduce fatigue and boredom associated with answering similar questions (Robins, Hendin, Trzesniewski, 2001). Although multi-item measures are considered to be in general more reliable, the use of single-item measures is appropriate when the measured domain is not multi-dimensional (Robins et al. 2001). The advantages of using single-item measures, when appropriate, have been noted previously (Burisch, 1984).

Figure Caption

Figure 1. The interactive effect of message type and involvement on persuasion. Study

1.

Figure 2. The interactive effect of delivery mode and involvement on persuasion. Study

1.

Figure 3. The interactive effect of delivery mode and message type on persuasion. Study

1.

Figure 4. The interactive effect of message type and involvement on persuasion. Study

2.

Figure 5. The interactive effect of delivery mode and message type on persuasion.

Study 2.

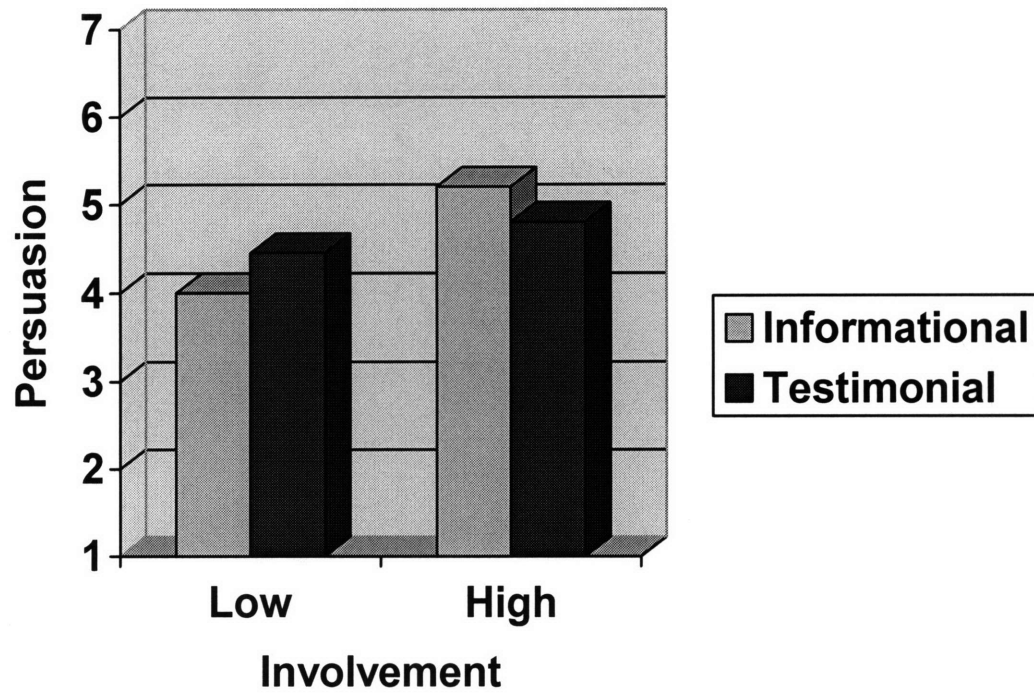
Figure 6. The interactive effect of message type and Need-for-Cognition on persuasion.

Study 3.

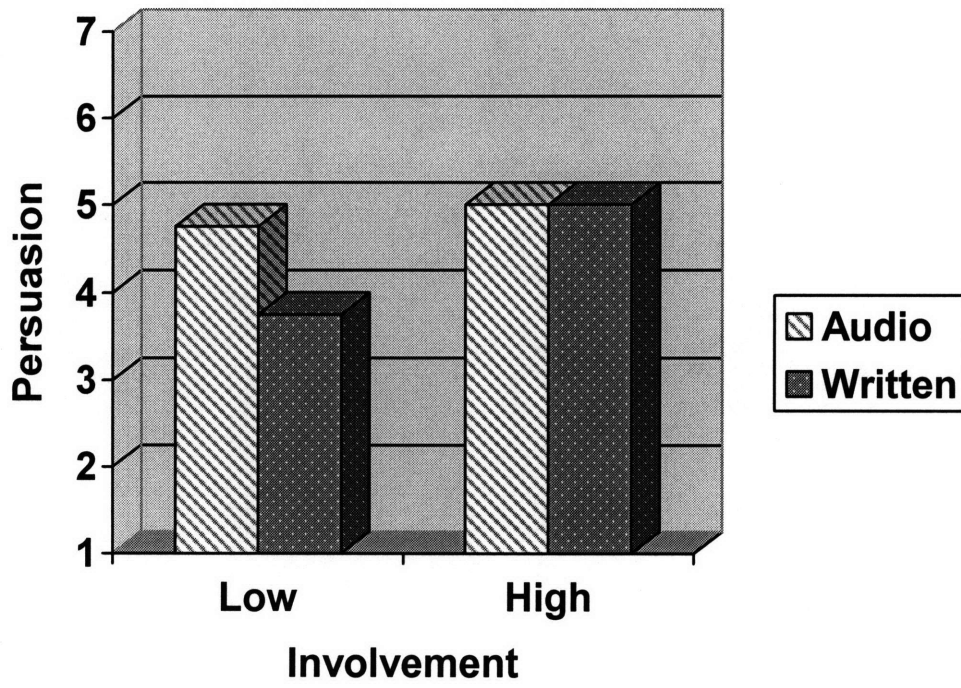
Figure 7. The interactive effect of delivery mode and message type on persuasion.

Study 3.

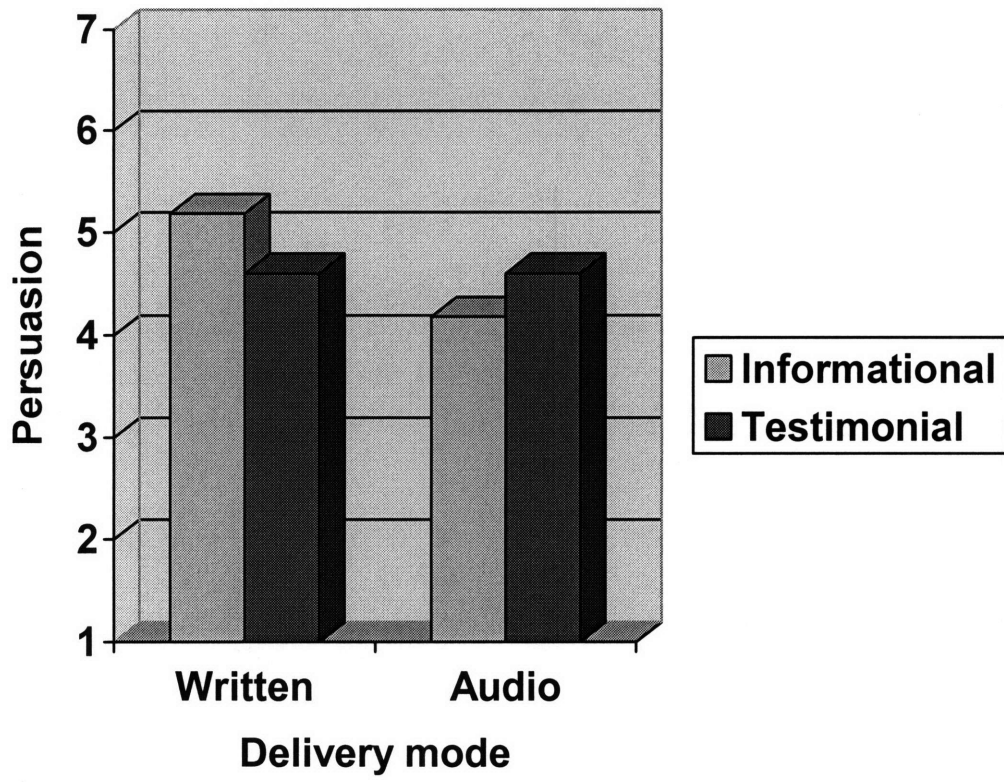
Testimonial Versus Informational Messages



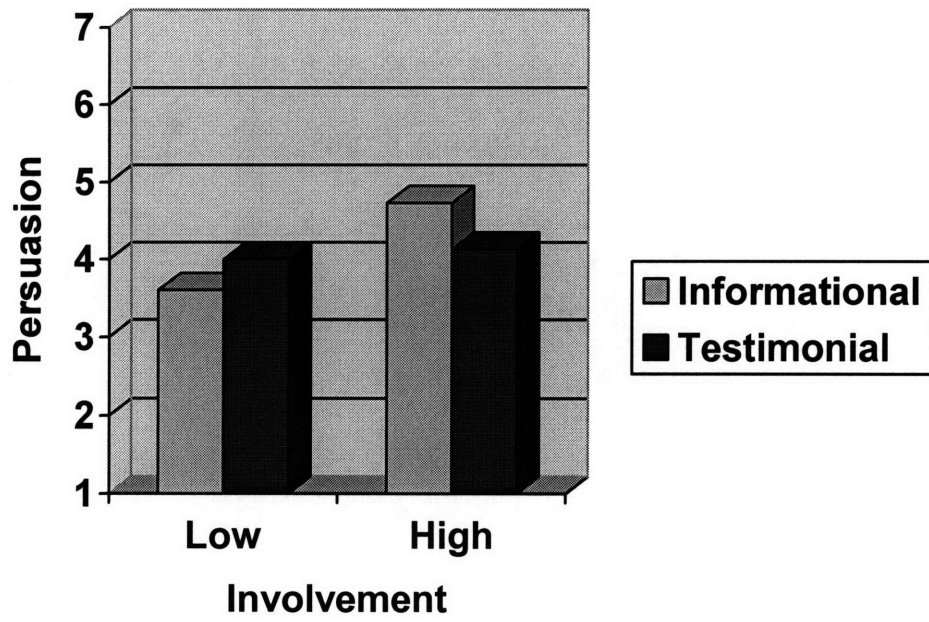
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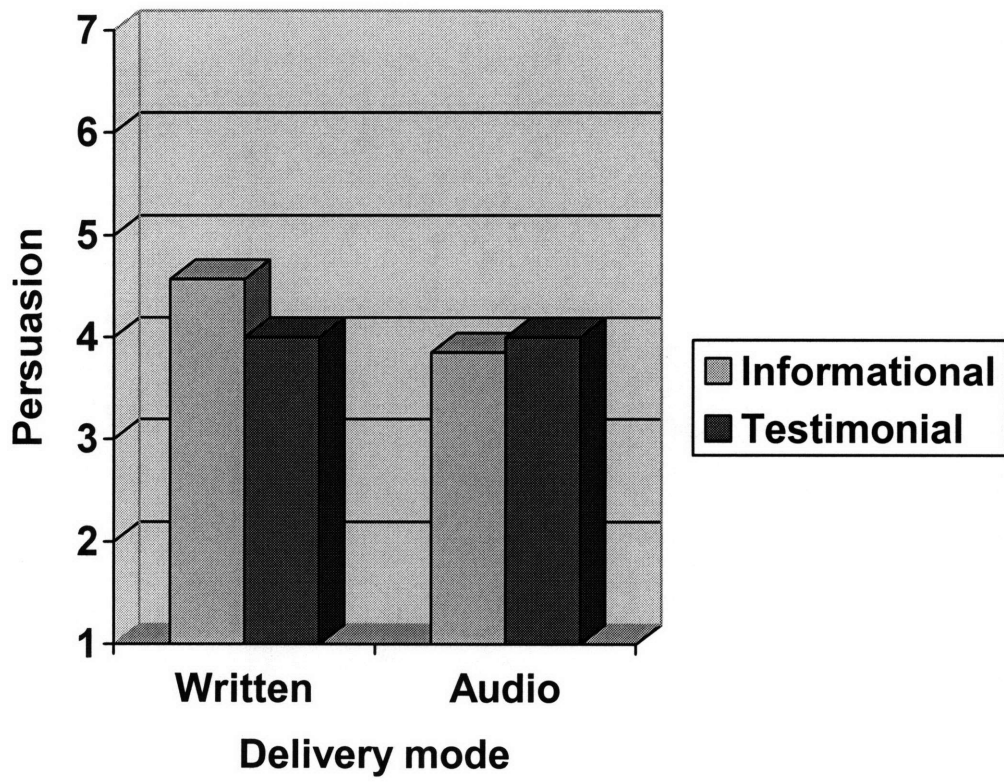
Testimonial Versus Informational Messages



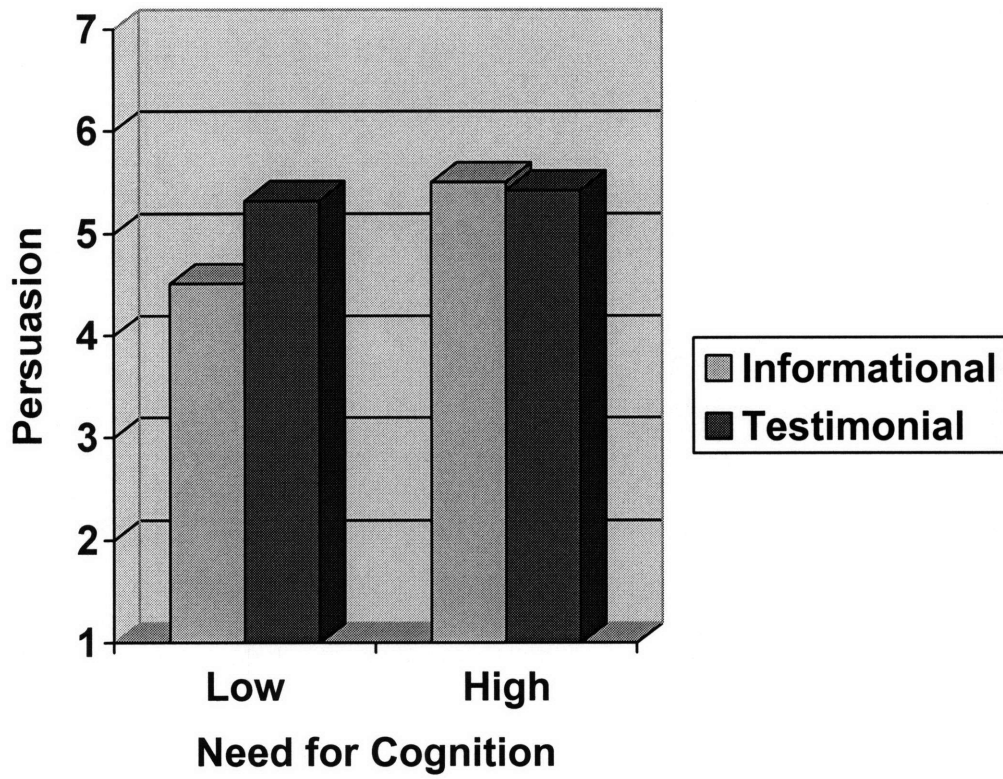
Testimonial Versus Informational Messages



Testimonial Versus Informational Messages



Testimonial Versus Informational Messages



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