

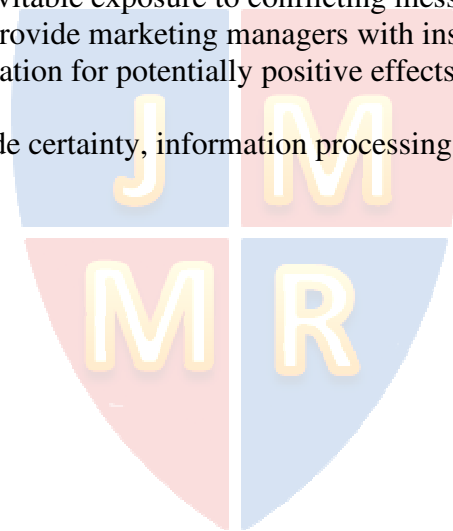
## **Elaborating on conflicting product reviews: Information processing and attitude certainty over time**

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### **ABSTRACT**

This research examines the relationship between message valence and information processing variables. Specifically, the effect of positive and negative reviews for a tablet compared with exposure to positive or neutral reviews on the level of elaboration in consumers is studied in the first experiment. The effect of exposure to an advertisement and negative review for a resort holiday compared to the advertisement only on attitude certainty in consumers is studied in the second experiment. Empirical findings support the hypothesis that conflicting messages trigger elaborative processing and increase attitude certainty over time. Given contemporary consumers' inevitable exposure to conflicting messages regarding products and services online, the findings provide marketing managers with insights for encouraging deeper processing of negative information for potentially positive effects on consumers.

Keywords: elaboration, attitude certainty, information processing, message valence, attitudes



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## INTRODUCTION

Business to consumer messaging is typically one-sided, meaning consumers receive positive information meant to persuade them in favor of the product or service. Businesses hold complete control over the messages consumers are exposed to through traditional channels, such as television commercials and magazine advertisements. To find alternative information about a product or service, consumers often have to seek advice from others or search online for reviews. To pursue this alternative information, consumers need interest, motivation, ability, and opportunity. To be persuaded by alternative information, a consumer would need to be uncertain of their attitudes toward the product or service, deeply process the alternative information, and become more certain of their attitudes over time.

Online marketing channels allow consumers to access alternative product and service information easier than ever before. It is difficult for companies to restrict negative information about their products from consumers (Monga & John, 2008). In fact, consumers now receive much of their product information from multiple media channels, as consumers seek both positive and negative information online at the same time (Ein-Gar et al., 2012). For example, Amazon.com displays positive and negative reviews of products side-by-side, blogs detail good and bad experiences with products, and people post their opinions about products for their friends on Facebook and Twitter. Internet searches for a given product or service may yield combinations of positive, neutral, and negative information from different sources on the same page of results. Consumers no longer have to expend as much effort as in the past to find alternative information concerning products and services; however, they do need to expend more effort to process the sheer volume of alternative information regarding products and services.

The shift in the source, valence, and volume of information creates a more dynamic relationship between consumers and businesses. It raises questions about how deeply consumers process positive and negative information about products and services, and how the depth of processing this information affects their attitude certainty over time. Since marketers cannot limit the exposure of consumers to negative information about their products and services, what kind of response can they expect? Through two experiments examining the processes involved in how consumers respond to conflicting information, this paper contributes to our understanding of those processes, and shows that marketers may actually benefit from the deeper elaboration and strengthened attitude certainty triggered by the presence of negative messages.

## LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

### Message Framing and Valence

Message framing refers to the presentation of information in a positive or negative manner (Maheswaran & Meyers-Levy, 1990; Tversky & Kahneman, 1974). Messages that are differentially-valenced and non-equivalent are messages that validate and then invalidate a position. For example, “it’s the best computer I’ve ever owned” and “it’s the worst computer I’ve ever owned” (Herr et al. 1991, p.455). The effects of these types of messages are important for marketers to understand, because they reflect the nature of the online reviews consumers read prior to deciding to purchase products or services.

Attitudes depend on the valence of information retrieved from memory (Kiselius & Sternthal, 1986). This suggests that exposure to positive information should result in favorable attitudes

toward a product or service and exposure to negative information should result in unfavorable attitudes toward a product or service. Despite the logic of this conventional wisdom, there are many factors that may influence a consumer to focus more on positive or negative information when making a judgment.

Factors influencing the retrieval of positive or negative information to form judgments include time and effort. Initial attitude impressions reflect the positivity or negativity of the information presented, because people tend to form quick impressions in an attempt to limit cognitive effort (Fiske & Taylor, 1991). These initial impressions tend to endure, unless further cognitive processing effort is expended (Hogarth & Einhorn, 1992). In other words, when processing effort is low, people base evaluations on their initial impressions (Ein-Gar et al., 2012); however, delayed attitude impressions are likely to favor the information most elaborated on during encoding (Mazursky & Schul, 1988). Elaboration is defined as the process of analyzing the validity of attitude-relevant information (Wegener & Chien, 2013; Petty & Cacioppo, 1986), and the greater the elaboration, the greater the information's availability when making attitudinal evaluations (van Laer, et al., 2018; Kiselius & Sternthal, 1986). According to the Elaboration Likelihood Model (ELM), individuals are influenced by peripheral cues, such as the positivity of the message, when elaboration is low, or by the deliberate evaluation of the arguments of a message when elaboration is high (Petty & Cacioppo, 1986). If marketers only measure initial attitudes or attitude certainty, they may not understand the full picture of consumer attitudes toward their product or service. This raises the question of factors influencing elaboration.

If elaboration aids in the retrieval of information to make attitudinal judgments, what motivates people to elaborate? According to researchers, negative information itself may be more elaborative. Information incongruent with a consumer's experience may motivate them to elaborate further, and it may enhance the recall of congruent information through association-building (Srull, 1981). Research on message acceptance shows a negativity bias in elaboration (Wright, 1974; Feldman & Lynch, 1988), in that individuals place relatively more weight and attention on negative information, due to its perceived 'informativeness' (Fiske, 1980; Ahluwalia, 2002). Negative information, in turn, takes more effort to process, because the presence of negative information prompts individuals to more closely scrutinize the validity of messages (Grant & Sternthal, 2004; Petty et al., 1983).

This leads to the first hypothesis of this research ( $H_1$ ), that participants exposed to positive and negative messages will demonstrate more elaboration than participants exposed to positive messages alone.

### **Information Processing and Attitude Certainty**

Attitude certainty is a metacognition that refers to the feeling of validity of one's attitude (Rucker & Petty, 2006). Attitude certainty is a consequence of elaborating on attitude-relevant information (Priester & Petty, 2003), because "consumers hold their attitudes with more certainty when they perceive them to be based on a consideration of both the pros and cons of an attitude object" (Rucker et al. 2014, p. 124). It follows, then, that receiving conflicting positive and negative information about an object should lead an individual to elaborate on the validity of this information, potentially increasing certainty in over time in the newly formed attitudes (Cohen & Reed II, 2014; Fabrigar et al., 2005). Cohen and Reed (2014) called for future research to address the process in which attitude ambivalence is resolved. This is important, because attitude

certainty may attenuate the unfavorable effects of negative information on attitudes over time (Ahluwalia & Gurhan-Canli, 2000), because people may counter-argue in favor of the positive information – a prospect desirable for marketers in the current context of conflicting online reviews.

Attitude uncertainty in the face of conflicting messages should motivate individuals to expend cognitive effort to validate the attitude (Eagly & Chaiken, 1993), and elaborative evaluations may result in more persistent attitudes over time. Resource constraints prevent many researchers from conducting longitudinal experiments to investigate factors influencing attitude persistence, however, there is some evidence of longitudinal effects. Kirmani and Shiv (1998) suggest that persuasive messages can have a delayed effect on attitudes some time after exposure. It is suggested that elaboration increases the potential for lasting attitude change, while lack of elaboration tends to result in individuals sticking with their initial impressions (Wegener, 2013). Higher attitude certainty is thought to make attitudes more resistant to persuasion (Rucker et al., 2014), more persistent (Rucker & Petty, 2006), and more likely to influence behavior over time (Tormala & Petty, 2002).

It is hypothesized ( $H_2$ ) that participants exposed to positive and negative messages will experience increased attitude certainty over time compared to participants exposed to positive messages alone.

## STUDY 1

### Method

To test  $H_1$ , that participants exposed to positive and negative messages will elaborate more than participants exposed to a positive message alone, an online longitudinal experiment was conducted using participants recruited from Amazon Mechanical Turk (MTurk). Participants were randomly assigned to one of three groups: 1) positive message; 2) neutral message; or 3) positive and negative messages. The neutral group served as a baseline to compare the positive and negative messages group. A neutral rather than no message baseline reduces the potential for the numerosity heuristic. The numerosity heuristic occurs when individuals are more favorable towards more information, rather than valence (Pelham et al. 1994). The neutral message control group, therefore, better balanced the amount of information participants received.

The stimuli took the form of product reviews for a fictitious tablet. Tablets are in the personal technology category, along with e-readers, smart phones, and laptops. Additionally, tablets were expected to be familiar to this particular sample (MTurk workers). Participants were presented with one or two reviews from a fictitious website similar to Amazon.com for a new tablet. The messages contained text only, to control for the potential vividness effects of images in advertisements. The messages were short in length (approximately 50 words). The content of the reviews was informed by a pilot study. The positive review lauded the responsive touchscreen, vibrant display, sleek design, long-lasting battery power, quantity of desirable applications, and seamless operating system. The neutral review described the features as average in a matter-of-fact manner. The negative review framed the tablet features oppositely to the positive review. For example, it described the touchscreen as unresponsive, the display as dull, and the design as bulky.

To ensure the valence of the reviews was perceived as intended, participants rated the reviews on a sliding scale from 1 = extremely negative to 7 = extremely positive, with neutral as

the mid-point. Attitudes were measured during both sessions, using 7-point semantic differential scales anchored with the following adjectives: good/bad, pleasant/unpleasant, positive/negative, favorable/unfavorable, desirable/undesirable, and like/dislike.

Participants were asked to list their thoughts, whether related or unrelated to the tablet, without regard to spelling or grammar (Cacioppo & Petty, 1981; Avnet et al., 2013; Malaviya, 2007). To measure the level of elaboration, the numbers of relevant thoughts were tabulated. Irrelevant thoughts are those not pertaining to the experiment whatsoever (e.g., "I wonder if the new episode of Salem aired") (Sengupta & Johar, 2002). A higher relevant thought count is a measure of higher elaboration.

Demographic questions included gender, age, and highest level of education completed. The MTurk parameters for the sample were: 1) located in the US; 2) 98% or higher acceptance rate; 3) 1,000 or fewer surveys completed. Participants were compensated \$.50 per completed response.

The study was introduced as a survey examining information processing. Participants were told they would be asked to read a statement(s) about a product and answer several types of questions that may be related or unrelated. After reading the informed consent sheet and agreeing to take part in the research as well as agreeing to be re-contacted, the review(s) were presented. Participants then filled out the dependent measures described above. They were then thanked for their participation. About 10 days later, they were contacted through MTurk's anonymous e-mail system and they again filled out the same attitude measures.

## Results

255 participants completed the first session and 139 participants completed the second session of the experiment. The average time delay between sessions was 9.79 days. Three participants were removed due to their qualitative answers indicating they were not exclusively completing the questionnaire (e.g., indicating they were watching movies at the same time). 11 participants failed the message valence check. These cases were removed from the data analysis, leaving a total of 125 participants. 40 participants were in the positive message group, 49 in the neutral message group, and 36 in the positive and negative messages group.

An analysis of the demographic variables revealed no significant effect of age, gender, or highest level of education completed on the dependent variables. 49 participants were male, 75 female, and 1 preferred not to say.

Reliability tests of the attitude scales resulted in acceptable Cronbach's alphas of .974 and .967, so all six items for each scale were collapsed into initial and delayed attitudes scales. For the first session, attitudes in the positive message group were higher than the neutral message group, which was higher than the positive and negative messages group. For the second session, attitudes were again higher in the positive message group, with the positive and negative messages group having attitudes more favorable than the neutral group as indicated in Table 1 (Appendix). Attitudes did not significantly change over time.

To test H<sub>1</sub>, a one-way ANOVA found significant differences between groups in terms of level of elaboration ( $F(2, 122) = 4.219, p < .01$ ), with the positive and negative messages group with significantly higher levels of elaboration ( $M = 5.111$ ) than the neutral ( $M = 4.143$ ) or positive message ( $M = 4.000$ ) groups. Supporting this finding, the word count for the positive and negative messages group was higher ( $M = 41.472$ ) than the positive ( $M = 30.65$ ) and neutral message groups ( $M = 30.857$ ). This result indicates a relationship between message valence and



level of elaboration, with the positive and negative messages group more likely to have higher elaboration than positive or neutral groups as indicated in Figure 1 (Appendix).

## Discussion

The first hypothesis, that there is a relationship between level of elaboration and message valence, is supported, because the results show that the positive and negative messages group was more likely to elaborate during information processing than the other groups. This suggests that the addition of conflicting information encourages individuals to consider the merits of the arguments presented in the messages (Esmark Jones, et al., 2018). While attitudes did not significantly change over time, the results demonstrate different levels of information processing occur in each group. This conclusion supports the need for further testing to examine level of elaboration and attitude certainty over time.

## STUDY 2

### Method

To test H<sub>2</sub>, that participants exposed to positive and negative messages will experience increased attitude certainty over time compared to participants exposed to a positive message alone, an additional online longitudinal experiment was conducted. Participants were randomly assigned to one of two groups: 1) a positive message group; and 2) a positive and negative messages group.

For the second experiment, participants read messages regarding a resort holiday on a Caribbean island. Cocos Island was chosen for the location, because it is a real Caribbean island, however, it is an uninhabited state park, making it a plausible-sounding destination without the risk of the participants having actually visited. The resort holiday was chosen, due the experiential and service-oriented nature differing from the computer tablet used in the first experiment. Participants in the positive message group read a fictitious positive advertisement for the resort modelled after online advertisements for Sandals Jamaica. The positive advertisement included a happy couple on a sunny beach, touting desirable weather conditions and excursions, private beaches, and beautiful views. Participants in the positive and negative messages group additionally read a fictitious negative review modelled after reviews found on TripAdvisor.com. The negative review showed an image of dark weather overshadowing a crowded pool, and countered all of the positive points made by the advertisement.

Attitudes, elaboration, and demographic questions were the same for Study 2 as Study 1. The recruitment and experimental procedures were also the same.

Participants were asked two attitude certainty questions during both sessions of the experiment: 1) “How certain are you of your attitude toward Cocos Resort on Cocos Island?” from 1 = Not at all certain to 7 = extremely certain; and 2) “How convinced are you that your attitude toward Cocos Resort is correct?” from 1 = Not at all convinced to 7 = Extremely convinced (Rucker et al., 2008; Nan, 2009).

## Results

185 participants completed the first session and 116 participants completed the second session of the experiment. The average time delay between sessions was 9.82 days. Eight participants were removed from data analysis for failing an attention check, two due to technical difficulties in viewing the messages, and seven participants for incorrectly identifying the message valence, leaving a total sample of 99 participants. 52 participants were in the positive message group, and 47 participants were in the positive and negative messages group.

Reliability tests of the attitude scales resulted in acceptable Cronbach's alphas of .983 and .986, with a reverse coded item removed, so five items for each scale were collapsed into initial and delayed attitudes scales. Attitudes in both sessions were higher for the positive message group than the positive and negative message group as indicated in Table 2 (Appendix). Attitudes did not significantly change over time.

For elaboration, a comparison of means did not find significant differences between the positive message ( $M = 4.625$ ) and positive and negative messages groups ( $M = 4.35$ ). Both groups experienced moderate levels of elaboration, suggesting the topic of an island resort holiday was relatively involving.

Reliability tests of the attitude certainty questions resulted in acceptable Cronbach's alphas of .849 and .884, so the items were collapsed into scales of initial and delayed attitude certainty. To test  $H_2$ , a repeated-measures ANOVA found attitude certainty significantly increases over time ( $F(1, 97) = 8.321, p < .01$ ) for the positive and negative messages group. This result indicates attitude certainty increases over time for positive and negative messages groups, but stays stable for the group exposed to a positive message only, as indicated in Figure 2 (Appendix).

As with the first experiment, an analysis of the demographic questions revealed no significant effects.

## Discussion

The second hypothesis, that there is a relationship between attitude certainty and message valence, is supported, because the results show that attitude certainty increases over time for the positive and negative messages group. Attitude certainty remained steadily high for the positive message group. The level of elaboration finding from the first experiment was not replicated in the second experiment, because both message valence groups displayed a moderate level of elaboration. Attitudes also did not significantly change over time. This conclusion supports the conjecture of different types of processing occurring over time for different message valence groups.

## GENERAL DISCUSSION

Two experimental studies tested the relationship between message valence and information processing variables. Through a literature review, two hypotheses were developed and then tested empirically.

The findings from the first study show that participants elaborated more when presented with conflicting online reviews than when they merely read a positive review. Rather than a traditional advertisement, participants read reviews similar to the style of reviews found on

Amazon.com. The source of the information is other consumers, which is analogous to the contemporary consumer context. The findings provide empirical support for the hypothesis that exposure to differentially-valenced, non-equivalent messages results in higher elaboration. It is possible the exposure to the negative message triggers elaborative processing by confronting participants with conflicting information from the positive message they accepted.

The purpose of the second experiment was to examine the meta-cognitive processing variable, attitude certainty. Attitude certainty is the validation of the correctness of one's attitude (Rucker et al., 2013). The second study essentially sought to understand if participants validate their attitudes over time when confronted with conflicting information. The findings show that participants' attitude certainty increased over time in the positive and negative messages group, but remained stable and high over time in the positive message group. According to the literature review, highly certain and stable attitudes should reflect low processing activity (Rucker et al., 2014), however the groups did not differ significantly on their level of elaboration. A possible explanation is that the topic of a resort holiday was involving for both groups. The stable high attitude certainty in the positive message group indicates the automatic acceptance of the arguments in the advertisement. The low, but increasing attitude certainty over time in the positive and negative messages group suggests a deliberative, time-consuming process to counter-argue the negative review and accept the positive advertisement.

### **Theoretical Implications**

The findings of these two experiments offers several theoretical implications. The experiments were developed to test hypotheses developed from a review of literature regarding message framing and information processing. Researchers identify information processing on online review platforms as a neglected area of study (Siering & Janze, 2019). The first experiment replicates previous researchers' findings that negative information tends to be more elaborative than positive information, but does not replicate a significant change in attitudes over time. Once the assumption regarding elaboration was confirmed as a result of the first experiment, an extension of our theoretical understanding was called for by examining the relationship between message valence and attitude certainty over time.

The second experiment extends our theoretical understanding of message valence and attitude certainty by providing evidence showing that attitude certainty increases over time when negative information is present. Taken together, these findings suggest there are different levels of processing occurring over time for differently-valenced messages. Thus, timing, information processing, and meta-cognitive variables are key to understanding consumers' responses to messages- the typical, immediate attitude measurement is not nuanced enough.

### **Managerial Implications**

The findings of these two experiments offers managerial suggestions. Both experiments mimicked different situations faced by marketers in the contemporary consumer context. The first experiment reflected the experience of consumers reading Amazon.com reviews. The second experiment reflected consumers seeing an online advertisement, then seeking a TripAdvisor.com review. Both cases provide insights about how consumers might process conflicting information.



The first experiment suggests negative reviews trigger deeper elaboration on message information. Researchers suggest higher elaboration of conflicting messages favors the positive message, rather than the negative message, because people want to associate with positive objects (Hannah & Sternthal, 1984). For marketers, this means that contemplating negative reviews, balanced with positive reviews are not bad enough for consumers to reject a product or service outright. In fact, the attitudes toward the product in the second session were neutral for all groups. Marketers should encourage consumers to share and read reviews so that they may deliberate the pros and cons of purchasing a product. A recent study found that consumers were more likely to purchase products recommended by product reviewers who admitted to making prior purchase mistakes (Reich & Maglio, 2020)- a type of negative information companies often try to suppress.

The second experiment suggests that negative reviews result in uncertain attitudes toward a product, but that attitude certainty increases over time. Researchers suggest increases in attitude certainty reflect deeper processing and more persistent attitudes (Rucker, et al., 2014). For marketers, this means that the presence of negative reviews might push a consumer to validate and strengthen their positive associations with the product or service. Consumers affirmed in their positive attitudes toward a product or service may resist further negative information. Marketers often focus on immediate effects of information on consumer attitudes; however, this experiment suggests important processing takes place over time. Again, marketers need not be dismayed by negative reviews, but should instead encourage consumers to validate the truth of their advertisements. The presence of negative reviews may in fact strengthen their case.

### **Limitations and Future Research**

This research has limitations, due to the constraints of conducting longitudinal experiments. The first limitation concerns attrition. MTurk workers were recruited for both experiments to reflect the population of people who read online reviews, however, they are more difficult to retain over two sessions than undergraduate students in a classroom. Future researchers may wish to begin with a larger sample to account for high attrition. The second limitation concerns the number of groups for each experiment. Neither of the experiments included a negative message group. It is possible participants may have reacted differently to a negative message alone. The complexity of interpreting the results of longitudinal experiments necessitated the employment of simple dependent measures. Future researchers may pursue the measurement and interpretation of mediating/moderating variables or other interaction effects. Relevant variables to consider include accessibility-diagnostics, involvement, attitude strength, beliefs, behavioral intentions, among others. Finally, there were mixed results regarding elaboration, likely due to the vastly different product categories of the stimuli in the experiments. Future researchers should replicate and expand on the findings by including products from different categories.

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**APPENDIX**

Table 1. Study 1 Attitudes.

Group	Session 1 Attitude Means	Session 1 Std. Dev.	Session 2 Attitude Means	Session 2 Std. Dev.
Positive Message	5.132	.889	4.539	1.001
Neutral Message	4.291	1.126	3.734	1.005
Positive and Negative Messages	3.845	.893	4.113	1.113

Figure 1. Study 1 Level of Elaboration.

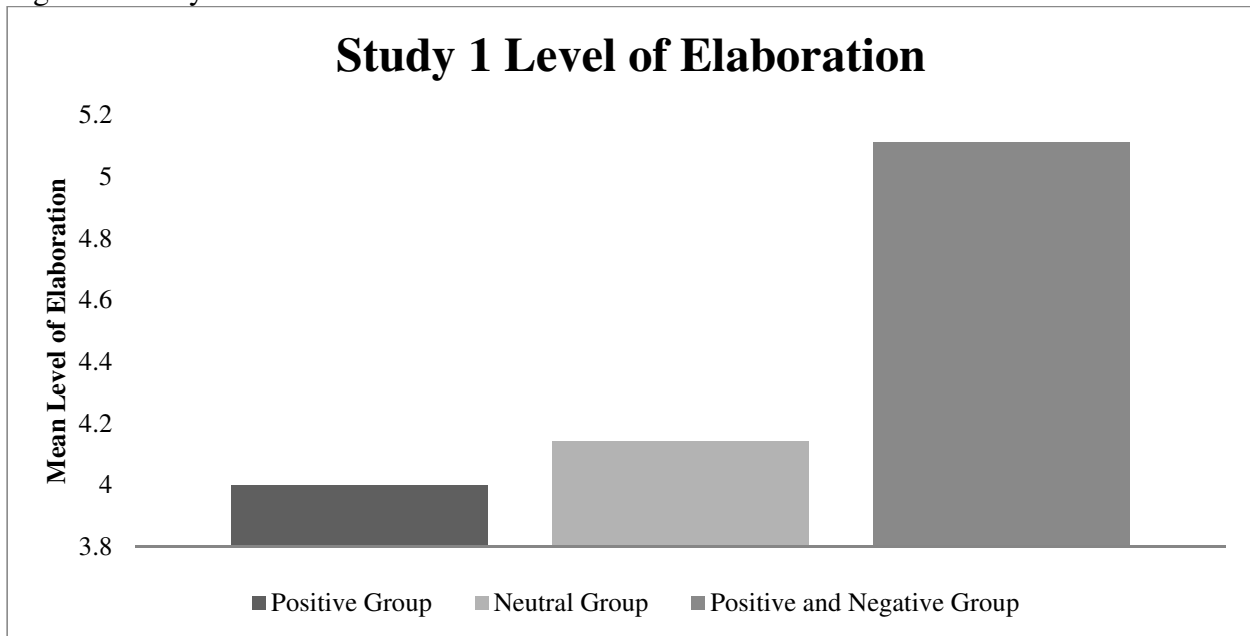


Table 2. Study 2 Attitudes.

Group	Session 1 Attitude Means	Session 1 Std. Dev.	Session 2 Attitude Means	Session 2 Std. Dev.
Positive Message	5.922	1.094	5.533	1.077
Positive and Negative Messages	4.937	1.679	4.537	1.643

Figure 2. Study 2 Attitude Certainty.

