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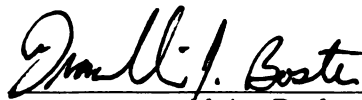
EXAMINING ATTITUDE DECAY IN PREVIOUSLY FORMED
AND NEWLY FORMED ATTITUDES FOLLOWING
PERSUASION

presented by

Sun Young Lee

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of the requirements for the

Ph.D. degree in Department of Communication



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**EXAMINING ATTITUDE DECAY IN PREVIOUSLY FORMED AND NEWLY
FORMED ATTITUDES FOLLOWING PERSUASION**

By

Sun Young Lee

A DISSERTATION

**Submitted to
Michigan State University
in partial fulfillment of the requirements
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ABSTRACT

EXAMINING ATTITUDE DECAY IN PREVIOUSLY FORMED AND NEWLY FORMED ATTITUDES FOLLOWING PERSUASION

By

Sun Young Lee

This study aimed at gaining understanding of attitude decay in persuasion.

It examined whether previously formed attitudes versus newly formed attitudes are subject to decay, and if reinforcement affects attitude decay. This study was composed of three single factor experiments, with participants randomly assigned to one of three studies. For the three studies, Study 1 used the topic of increasing university tuition on which people have previously formed attitudes in order to investigate the decay of attitudes modified in the positive direction after exposure to a persuasive message. Study 2 employed the topic of binge drinking on which people have also previously formed attitudes in order to investigate the decay of attitudes modified in the negative direction after exposure to a persuasive message. Study 3 used the topic of apheresis donation to examine the decay of newly formed attitudes in the positive direction after exposure to a persuasive message. The results showed that previously formed attitudes decayed to their initial positions without reinforcement. With reinforcement, however, previously formed attitudes did not decay. Regardless of reinforcement, newly formed attitudes did not decay to their

initial attitudinal positions. Interestingly, however, newly formed attitudes were not consistent, and instead decreased toward the direction of initial attitudinal positions.

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INTRODUCTION

During the past four decades, considerable persuasion research has been conducted to illustrate how to modify people's attitudes or form new ones, with researchers expressing increased interest in the various factors affecting attitudes. They have investigated message characteristics, such as argument strength (Hosman, Huebner, & Siltanen, 2002), argument sidedness (O'Keefe, 1990), message order effects (Haygtvedt & Wegener, 1994), framing effects (Maheswaran, 1990), and fear appeals (Witte, 1992). They also investigated receiver and context characteristics, such as receivers' personality traits, level of involvement (Leippe & Elkin, 1987), cognitive ability to process messages (Petty & Cacioppo, 1986), and mood (Petty, Schumann, Richman, & Strathman, 1993). Other factors researchers were concerned about include source characteristics such as source credibility (Burgoon, Birk, & Pfau, 1990), source expertise (Homer & Kahle, 1990), source likeability (Roskos-Ewoldsen & Fazio, 1992), and source's speech rate (Smith & Shaffer, 1995).

Almost all persuasion research thus far, however, investigates attitude modification or new attitude formation immediately after exposure to a persuasive message, and fails to examine attitude decay. In general, persuasion scholars

acknowledge that persuasive effects decay over time. O’Keefe (1990) stated, “Old habits and attitudes can return, competing persuasive messages can be received, and hence the impact of a given persuasive effort is likely to diminish over time” (p. 186). Cacioppo, Petty, and Green (1989) also argue that when attitudes are changed by a persuasive message, the attitude system works to return the modified attitudes to their initial positions. However, it is not clear if all types of attitude are subject to decay, since there is a lack of research on the attitude decay phenomenon. The attitude decay issue is of significance because of the practical importance of studying long-term effects of persuasion.

The current study seeks to identify conditions under which attitude decay is likely to occur. In particular, it examines whether previously formed attitudes versus newly formed attitudes produce attitude decay. In addition, it investigates if reinforcement of those previously formed or newly formed attitudes affects attitude decay. Given the lack of empirical findings, the following review will serve as the rationale for the hypotheses developed for the study.

CHAPTER 1

Persuasion Studies in Communication and Attitude Decay

Persuasion is defined as “a successful intentional effort at influencing another’s mental state through communication in a circumstance in which the persuadee has some measure of freedom” (O’Keefe, 1990, p.17). As for the mental state mentioned in the definition, the concept of attitude has been seen as the principal representative of it.

Persuasion, in general, has been studied in three ways in communication. Researchers investigate (a) the method and (b) the process of producing attitude modification or formation, and (c) the way of inducing attitudinal resistance to persuasive effort. The two variables involved are message as the independent variable and attitude as the dependent variable (Dillard, 1993). Message characteristics that have been studied include argument strength, argument sidedness, message order, message framing, and the type of appeal (see O’Keefe, 1990). In addition to message characteristics, researchers have expanded this simple equation of persuasion with additional independent characteristics of sources, receivers, and context. Source characteristics studied include source expertise, credibility, likeability, and speech rate (see Burgoon et al., 1990; Homer & Kahle, 1990; Roskos-Ewoldsen & Fazio, 1992; Smith & Shaffer,

1995). Receiver and context characteristics consist of receivers' personality traits, cognitive abilities, involvement, and moods (see Leippe & Elkin, 1987; Petty & Cacioppo, 1986; Petty et al., 1993). Many studies have investigated the method of forming or modifying attitudes by using those message, source, receiver, and context characteristics. For instance, researchers find that more credible sources generate more attitude change than less credible sources (Burgoon, 1990).

Despite the abundance of persuasion research, little attention has been paid to the attitude decay problem. Attitude decay occurs when attitudes return to their initial positions following persuasive communication (see O'Keefe, 1990). Attitude decay is expected if attitudes are part of a larger belief structure. Poole and Hunter (1979) show attitudes that are embedded in a larger belief structure tend to return to their initial positions following persuasive communication. Given that attitudes that are embedded in a belief structure are relatively strong attitudes, decay is likely to occur with these strong attitudes when they are modified by persuasive communication. Attitude decay may be of importance when the goal of a persuasive message is not immediate decision making or action. Many studies find that persuasive messages have an effect on immediate decision making, but also that modified attitudes decay as early as two days after persuasive communication (Haugtvedt & Strathman, 1990). Therefore, if a time

gap exists between persuasive effort and decision making, or if attitude persistence over time is desired, reinforcement is needed.

Attitude Decay in Previously Formed Attitudes versus Newly Formed Attitudes

As attitude decay implies lack of attitude persistence, the feature of persistent attitudes needs to be examined. Although no reliable empirical information is available regarding factors affecting attitude persistence, some researchers speculate about them (O'Keefe, 1990). One factor might be the number of arguments presented in a persuasive message that supports the attitude. If the modified attitude is affected by many arguments, it appears to be persistent (compare Leventhal & Niles, 1965 with Calder, Insko, & Yandell, 1974). Communicator credibility also might affect attitude persistence. Cook and Flay (1978) suggest that a highly credible source is associated with attitude persistence. In addition, the receiver's high involvement with the issue might be associated with attitude persistence (see Cook & Flay, 1978). The communication modality also seems to be related to attitude persistence, as Chaiken and Eagly (1983) found that written messages generate slightly stronger attitude persistence than audiotaped or videotaped messages. Another factor might be the amount of cognitive elaboration employed in processing a persuasive message. This factor is inferred from the Elaboration Likelihood Model, which suggests two routes of attitude

modification. That is, when people process a persuasive message through a central route, which involves careful attention to issue relevant information, modified attitudes are strong and persistent. On the other hand, when people's attitudes are modified through a peripheral route, which relies on heuristics, their modified attitudes are relatively weak and not persistent over time.

Another potential factor might be the type of attitudes people acquire after receiving persuasive communication, namely previously formed attitudes or newly formed attitudes. Previously formed attitudes refer to attitudes that are formed positive or negative way toward a topic before receiving a persuasive message, and may be modified in either the negative or the positive direction toward the topic after receiving a persuasive message. In particular, previously formed positive or negative attitudes toward a topic are strong attitudes because they have been fully formed and embedded in a larger belief structure before exposure to persuasive communication. Those previously formed attitudes are, therefore, likely to decay to their initial positions following exposure to a persuasive message because the initial attitudes are strong.

Newly formed attitudes refer to attitudes that are initially neutral toward a topic before receiving a persuasive message because of unfamiliarity toward the topic. People form their new attitudes toward the topic in either the positive or the negative

direction after exposure to a persuasive message. In other words, people first form their attitudes toward an unfamiliar topic through information shown in a persuasive message. Because these newly formed attitudes become an individual's fully formed initial attitudes, they would not likely decay to their initial neutral positions. Figure 1 summarizes this speculation.

The Double Comparison Model of Attitude Change and Attitude Decay

The argument that attitude decay pertains only to previously formed attitudes is supported by Hunter, Levine, and Sayers (1976). According to their research, most attitudes are embedded in a hierarchy of beliefs about concepts, which are arranged on levels from the most abstract to the least abstract. They also suggest that downward influence of beliefs is stronger than upward influence (if it exists), and that horizontal influence does not occur. Attitude modification can be acquired by having messages at any or all levels of abstraction. Hunter et al. (1976) propose a double comparison model for attitude change with a single message. The model suggests that, (a) people compare their attitudes toward a specific object with the position advocated in the external message, and (b) they compare their attitudes toward the object with their attitudes toward objects (or concepts) directly above in the hierarchy. They suggest that this comparison is made between two adjacent levels. In other words, people compare their

feelings for an object with both external and internal messages after exposure to a persuasive message. Based on previous persuasion research, it seems that people mainly engage in external message comparison during exposure to a persuasive message, as numerous research reports a positive persuasive message effect. As time passes, people seem to engage mostly in internal message comparison, which explains the attitude decay phenomenon. The internal message comparison affects attitude decay because people's fully established initial attitudes are already well-organized and associated with superordinate concepts in their belief systems, and the downward influence of the beliefs associated with this initial attitude is strong. The model also implies that attitudes embedded in a belief system are strong attitudes because weak attitudes are not well associated with other beliefs (Krosnick & Petty, 1995). In the same fashion, initial attitudes that are well organized in a belief system before exposure to a persuasive message are strong attitudes, such that they cause previously formed attitudes to decay.

However, newly formed attitudes after exposure to a persuasive communication are not well-formed because people create their new attitudes toward a novel topic through a persuasive message. Their not well-formed initial attitudes are, therefore, not embedded in a belief structure and not influential on internal message comparison. As a

result, newly formed attitudes are not likely to decay.

Information Integration Model and Attitude Decay

In addition to the double comparison model of attitude change, an information integration model suggested by Kaplowitz, Fink, Armstrong, and Bauer (1986) also provides relevant information for predicting attitude decay in certain kinds of previously formed attitudes, and no attitude decay in certain kinds of newly formed attitudes. Their model is based on the information integration theory suggested by Anderson (1981) describing the process by which different pieces of information are combined to form evaluations. According to Anderson's information integration theory, evaluations such as attitudes or beliefs are newly formed or modified as people receive, interpret, evaluate, and integrate information with their existing beliefs or attitudes (Simonin, & Ruth, 1998). The information integration model suggested by Kaplowitz et al. (1986), however, further explains the process for long-term attitude change.

From their model, a factor relating to attitude decay is the number of delayed messages people receive (messages people receive after persuasive effort). They suggest that "the greater is the total weight of the delayed messages, the more the final attitude will approach the average scale value of the delayed messages" (p. 514). The total weight means the total weight of messages people receive after persuasive

communication, and it depends on length of and number of arguments in the message, and source credibility (Kaplowitz et al., 1986). The average scale value of the delayed messages refers to “the position that the subject interprets the message as advocating” (p. 510).

For the previously formed attitudes toward familiar issues, it is likely that people have a social environment containing others who 1) care about these familiar issues and 2) have an average view that is similar to their own initial view. Consequently, after exposure to a persuasive communication, people are likely to receive many messages advocating their own initial view. Therefore, attitude decay toward this initial view is expected, unless someone (e.g., the experimenter) provides messages that reinforce the new opinion.

Conversely, newly formed attitudes toward novel issues are not just newly formed. In addition, they are probably something that most others the subject encounters know almost nothing about. Consequently, these others in the social environment are not likely to try to influence the subjects to return to their initial neutral opinion toward the issues. Therefore, there will probably be no messages from their peers that encourage decay of the newly formed attitudes. In short, attitude decay is not expected regardless of whether the subject is provided with messages reinforcing their newly formed attitudes.

Reinforcement of Attitudes Following Persuasive Communication

If attitude decay phenomena exist in previously formed attitudes, then reinforcement to those previously formed attitudes is needed to have a long-term persuasive effect. The reinforcement would make the previously formed attitudes strong enough not to decay in a given time following persuasive communication. In other words, the reinforcement assists previously formed attitudes to have characteristics of strong attitudes: durability and impactfulness (Krosnick & Petty, 1995). Durability is persistence over time and resistance to counterpersuasion, and impactfulness causes consequential influence on thought and behavior.

Researchers report numerous attributes of strong attitudes that can be applied to reinforcement. As shown in Table 1, the attributes can be grouped into four categories (see Krosnick & Petty, 1995). One category consists of features of the attitude itself, such as extremity (Judd & Johnson, 1981; Osgood & Tennenbaum, 1955) or intensity (Cantril, 1946; Stouffer, Guttman, Suchman, Lazarsfeld, Star, Clausen, 1950). The second category consists of cognitive structure associated with the attitude object, such as attitude accessibility (Bassili & Fletcher, 1991; Bizer & Krosnick, 2001; Fazio, 1995; Krosnick, 1989; Roese & Olson, 1994), knowledge (Kanwar, Grund, & Olson, 1990), or affect-cognitive consistency (or matching one's feelings about an object with one's belief

about its attributes) (Chaiken & Baldwin, 1981; Norman, 1975). The third category consists of cognitive processes by which an attitude is formed, such as the amount of elaboration (Bradburn & Caplovitz, 1965; Kendall, 1954) or direct experience (Regan & Fazio, 1977; Schuman & Presser, 1981). The fourth category consists of the subjective beliefs about an attitude object and an attitude, such as personal importance of the attitude (Bizer & Krosnick, 2001; Boninger, Krosnick, Berent & Fabrigar, 1995; Krosnick, 1989), centrality of the attitude to the self-concept (Bizer & Krosnick, 2001), attitude certainty (Holland et al., 2003; Krosnick & Schuman, 1988), or latitudes of rejection and noncommitment (Sherif, Sherif, & Nebergall, 1965; Sherif, Kelly, Rogers, Sarup, & Tittler, 1973).

Among the attributes of strong attitudes, attitude accessibility has been a frequent focus of study, and is also exploitable as a target of reinforcement. Attitude accessibility is defined as the strength of the link between an object and its evaluation in memory (Fazio, 1995), such that a highly accessible attitude has a stronger link between the object and its evaluation. A network model of memory presents an explanatory framework regarding attitude accessibility in memory.

A network model of memory (see Anderson, 1983; Green, 1984; Smith, 1994) posits that any concept obtained is represented in memory as a node, and certain nodes

are linked by associative pathways. A node is activated by exposure to related information or thinking about such information, and then activates other nodes through associative pathways. In this model, attitudes are seen as associations in memory between attitude objects and their evaluations (Fazio, 1986). Nodes that are strongly connected have strong associative pathways and vice versa (Pfau et al., 2003). When the connection between an attitude object and its evaluation is strong, the accessibility of the attitude toward that object is high. Consequently, highly accessible attitudes are easily and quickly retrievable from memory. Therefore, reinforcement attempting to increase attitude accessibility would produce strong attitudes, and thus less likelihood of attitude decay.

The Method of Writing an Essay as Reinforcement of Attitudes Following Persuasion

To affect attitude accessibility, the factors affecting attitude accessibility need to be examined. As shown in Figure 2, one factor is frequency of expression of attitudes. The more often people express their attitudes, the more accessible they are. Direct behavioral or sensory experience in forming attitudes also affects attitude accessibility because physical inputs are memorable. Another factor is the strength of the emotional reaction to an attitude object. For example, if someone has a strong emotional reaction toward an object, the attitude toward that object becomes highly accessible (Fazio, 1995).

In addition, the hierarchical arrangement of attitudes affects accessibility such that higher ranking attitudes are more accessible than lower ranking attitudes (Dillard, 1993). Higgins and King (1981) also suggest that attitude uniqueness and an attitude's link to other constructs affect attitude accessibility. Thus, if an attitude is more distinctive, it is more accessible. Furthermore, the more strongly an attitude is linked to other constructs (e.g., values) through associative pathways in memory, the more accessible it is. Others suggest that the expectation of evaluating an attitude object in the future, the amount of cognitive elaboration used in evaluation, and how recently the attitude has been activated from memory, influence attitude accessibility (see Roskos-Ewoldsen et al., 2002).

The current study, in particular, focuses on strengthening the link of an attitude to other constructs to increase attitude accessibility, and suggests that writing an essay about the attitude- associated construct would strengthen the link. The method of writing an essay about the construct would make the construct salient. Information is salient if it is noticeable, important, and memorable (Entman, 1993). If a persuasive message focuses on a certain value in its context, previously formed or newly formed attitudes after exposure to this persuasive message are linked to this certain value. That is, people modify their attitudes when they think about that value. For example, if a persuasive message supports a certain political candidate, and this candidate emphasizes equal

opportunity and national defense in a message, the message promotes the values of equality and security. When people have strong negative attitudes toward this candidate, but embrace those values, then they will change their attitudes in the direction of supporting the candidate. Their attitude change toward the candidate in the positive direction is associated with equality and security values. The attitude decay phenomenon, however, suggests that their changed attitudes will return to their initial negative attitudes toward that candidate if the persuasive message does not require immediate decision making, or if listeners do not receive additional persuasive messages. That is, the link between their modified attitudes toward the candidate and valuing equality and security becomes weak, other beliefs associated with their initial attitudes toward the candidate come to mind, and they therefore refer to their initial negative attitudes.

If the audience, however, writes an essay about the importance of “being equal” or “being secure,” then they will view the value of equality or security as more salient than other beliefs in their belief structure. Moreover, people will recognize that the equality or security value is associated with their modified attitudes toward the candidate. The writing, consequently, plays a role in strengthening the link between their modified attitudes toward the candidate and valuing equality and security, and increases

accessibility toward the modified attitudes.

As noted before, because reinforcement is necessary only for previously formed attitudes, not for newly formed attitudes, after exposure to a persuasive message, the method of writing an essay would be effective only with previously formed attitudes. That is, when the persuasive outcome is attitude modification from previously formed attitudes, previously formed attitudes are likely to decay without the reinforcement of writing an essay, but are not likely to decay with reinforcement of writing an essay. However, if the persuasive outcome is new attitude formation, newly formed attitudes are unlikely to decay, regardless of the reinforcement of writing an essay. Thus, the following predictions are asserted.

H1: If there is no reinforcement, previously formed attitudes, after exposure to a persuasive message, are likely to decay. However, if there is reinforcement, previously formed attitudes are not likely to decay.

H2: Despite the presence or absence of reinforcement, newly formed attitudes, after exposure to a persuasive message, are not likely to decay.

CHAPTER 2

METHOD

Overview

This study was composed of three single factor experiments, with participants randomly assigned to one of three studies. All studies consisted of a pretest, initial posttest, and delayed posttest design. Across the three studies, reinforcement was manipulated by assigning people to either an essay condition or a no essay condition. Therefore, essay or no essay condition was the independent variable. Attitudes at pretest, initial posttest, and delayed posttest were the dependent variables.

At pretest, participants' initial attitudes toward an issue before exposure to a persuasive message and issue involvement were assessed. Then, they received a persuasive message designed to induce positive, more positive, negative, or more negative attitudes toward the issue. The context of the message focused on a certain value. At the initial posttest, participants were asked to rate their attitudes toward the issue after exposure to a persuasive message, issue involvement, and source credibility. After 21 days, participants were randomly assigned to either the essay or no essay condition. In the essay condition, participants were asked to compose an essay about

importance of the value presented in the persuasive message. At the delayed posttest, participants in both the essay and no essay conditions were asked about their attitudes toward the issue (see Figure 3 for the design). Attitude decay would be detected by comparing attitude scores at initial posttest with those at the delayed posttest.

To examine attitude decay in common persuasive efforts (positive attitude change, negative attitude change, and positive attitude formation), this study employed three topics. Study 1 used the topic of increasing university tuition to investigate the decay in attitudes which had previously formed and modified in the positive direction after receiving a persuasive message. Study 2 used the topic of binge drinking to investigate the decay in attitudes previously formed and modified in the negative direction after receiving a persuasive message. Study 3 used the topic of apheresis donation to examine the decay in attitudes newly formed in the positive direction after receiving a persuasive message. For organization purposes, this section presents the methods and results of Study 1, Study 2, and Study 3.

Method of Study 1

Topic Selection and the Persuasive Message

This study focused on decay in previously formed attitudes and modified in the positive direction after exposure to a persuasive message. It employed the topic of

increasing university tuition to produce fully formed initial attitudes, specifically negative ones, and to allow positive attitude change. Participants' initial attitudes toward the topic would be well-organized in their belief structures and be strong because this topic has been familiar and controversial among college students. The persuasive message was designed to support increasing university tuition and focused on the success value, such that increasing university tuition would help students obtain better jobs (see Appendix A for all messages).

Design and Data Analysis

This experiment used a pretest, initial posttest, and delayed posttest design. The attitudes toward increasing university tuition were measured on three tests and analyzed using 3 (three tests) x 2 (essay/no essay) ANOVA. At pretest, attitudes toward increasing university tuition before exposure to a persuasive message and issue involvement were measured. At posttest, attitudes toward increasing university tuition after exposure to a persuasive message, issue involvement, and source credibility were measured. After 21 days, participants were randomly assigned to either the essay or no essay condition to manipulate the independent variable. The essay condition asked participants to write an essay about the importance of "being successful." At delayed posttest, their attitudes toward increasing university tuition were measured.

Participants

Fifty-three students at a major midwestern university participated in the study. Three students were unavailable at follow-up. Therefore, fifty undergraduate students' responses were retained for analyses. Participation was voluntary, and the investigator assured confidentiality.

Of these participants, 27 students participated in the essay condition (E) and 23 students participated in the no essay condition (C). The sample was composed of 32 females (64%) and 18 males (36%). They ranged in age from 18 to 24 years, with the average being 20.30 years ($SD=1.30$). Among them, 33 were Caucasian (67.3%), 5 were African American (10.2%), 5 were Asian (10.2%), 3 were Hispanic (6.1%), one was Native American (2.0%), and two people were unidentifiable (4.1%). The majority of participants were juniors (44%), followed by seniors (26%), sophomores (16%), freshmen (12%), and other (2%). Most participants were familiar with ($M = 4.78$, $SD = 1.36$) or had heard of increasing university tuition ($M = 6.22$, $SD = 1.00$) before the study.¹

Statistics show no evidence that participants' levels of knowledge, $t(48) = 0.43$, $p > .05$, familiarity with increasing university tuition, $t(48) = -0.02$, $p > .05$, and age, $t(48)$

= 0.02, $p > .05$, differed between conditions. In addition, there was no evidence that gender significantly differed across conditions ($\chi^2 = .03$, $p > .05$).

Instrumentation

Confirmatory factor analyses (Hunter & Gerbing, 1982) were conducted for all scales to test their content validity. Items passing internal consistency and parallelism tests were retained.

Attitudes toward the issue. Attitudes toward increasing university tuition were measured three times: at pretest, initial posttest, and delayed posttest. The items were bad/good, unfavorable/favorable, negative/positive, disagreeable/agreeable, foolish/wise, unacceptable/acceptable, and wrong/right. The reliability of the attitude scale at pretest was $\alpha = 0.90$ ($M = 2.34$, $SD = .86$), $\alpha = 0.93$ at initial posttest ($M = 3.52$, $SD = 1.10$), and $\alpha = 0.96$ at delayed posttest ($M = 3.35$, $SD = 1.15$).

Issue involvement. Issue involvement scale was measured twice: at pretest and initial posttest (pretest: $\alpha = 0.89$, $M = 6.11$, $SD = 0.92$; initial posttest: $\alpha = 0.92$, $M = 5.99$, $SD = 1.07$). This variable was measured as a control variable.

Source credibility. Source credibility has two dimensions, expertise and trustworthiness. The reliability of expertise and trustworthiness scales were 0.77 ($M = 4.55$, $SD = 0.96$) and 0.72 ($M = 4.32$, $SD = 0.96$), respectively. This variable served as a

control variable.

Results of Study 1

Test of the Hypothesis

The control variables (issue involvement and source credibility), gender, race, and year in college were not significantly associated with the dependent variable (attitudes). Therefore, they were not considered in the analyses.

H1: If there is no reinforcement, previously formed attitudes after exposure to a persuasive message are likely to decay. However, if there is reinforcement, previously formed attitudes are not likely to decay.

Table 2 presents the means and standard deviations for attitudes toward increasing university tuition at the three tests by essay/no essay conditions. The table shows that, in general, participants initially had negative attitudes toward increasing university tuition ($M = 2.34$, $SD = 0.86$ at pretest) but they changed their attitudes in the positive direction after exposure to a persuasive message ($M = 3.52$, $SD = 1.10$ at initial posttest, $t(49) = 8.55$, $p < .001$).

To test the hypothesis, ANOVA was conducted and results are summarized in Table 3. Results show a significant interaction effect of essay/no essay in the three tests, $F(2, 96) = 17.96$, $p < .001$, partial eta-squared = 0.27. Figure 4 indicates that this

interaction may be attributed to the differing pattern of decay graph (the line between attitude at initial posttest and delayed posttest) of the essay condition compared with the delay graph of the no essay condition. Here, attitudes toward increasing university tuition in the essay condition changed more favorable from initial posttest to delayed posttest. For the no essay condition, attitudes changed less favorable toward increasing university tuition from initial posttest to delayed posttest.

The interaction effect was further explored by examining the pattern of attitude scores between the essay and no essay conditions, and it was found that the no essay condition's attitudes were significantly less favorable than the essay condition, but only at the delayed posttest, $t(48) = -7.88, p < .001$. With the no essay condition, attitudes changed less favorable from initial posttest to delayed posttest, $t(22) = 4.55, p < .001$, and the attitude score at delayed posttest did not differ from the attitude score at pretest, $t(22) = -0.94, p > .05$, suggesting that previously formed attitudes decayed to their initial positions without an essay. However, with an essay, attitudes changed more favorable from initial posttest to delayed posttest, $t(26) = -2.52, p < .05$. These findings were evident for the positive reinforcement effect on avoiding attitude decay in previously formed attitudes.

Method of Study 2

Topic Selection and the Persuasive Message

This study focused on the decay in attitudes modified in the negative direction after exposure to a persuasive message. It employed the topic of binge drinking to produce fully formed initial attitudes, and to allow negative attitude change.

Participants' initial attitudes toward the topic would be well organized in their belief structure and be strong because this topic has been familiar and controversial among college students. The persuasive message was designed to oppose binge drinking. It illustrated the negative effects of binge drinking, supported the development of campus-wide programs to decrease binge drinking, and focused on the health value, such that the programs would help students to be physically and psychologically healthy.

Design and Data Analysis

This experiment used a pretest, initial posttest, and delayed posttest design. Attitudes toward binge drinking were measured during the three tests and analyzed using a 3 (three tests) x 2 (essay/no essay) ANOVA. At pretest, attitudes toward binge drinking before exposure to a persuasive message and issue involvement were measured. At posttest, attitudes toward binge drinking after exposure to a persuasive message, issue involvement, and source credibility were measured. After 21 days, participants were

randomly assigned to either an essay or no essay conditions to manipulate the independent variable. The essay condition asked people to write an essay about the importance of “being healthy.” At delayed posttest, their attitudes toward binge drinking were measured.

Participants

Forty-two students at a major midwestern university participated in the study. Two students were unavailable at follow-up. Therefore, forty undergraduate students’ responses were retained for analyses. Participation was voluntary and the investigator assured confidentiality.

Of these participants, 21 students participated in the essay condition (E), and 19 students participated in the control condition (C). The sample was composed of 28 females (70%) and 12 males (30%). They ranged in age from 18 to 28 years, with an average age of 20.65 years ($SD=1.72$). Among them, 35 were Caucasian (89.7%), 2 were Asian (5.1%), 1 was African American (2.6%), and 1 was Hispanic (2.6%). The majority of participants were juniors (67.5%), followed by sophomores (15%), seniors (12.5%), and freshmen (5%). Most participants were familiar with ($M = 6.38$, $SD = 0.87$) or had heard of binge drinking ($M = 6.78$, $SD = 0.62$) before the study.

Statistics show no evidence that participants' age, $t(38) = -0.43, p > .05$, level of knowledge, $t(38) = 0.32, p > .05$, or familiarity with binge drinking, $t(38) = 1.21, p > .05$ differed between conditions. In addition, there was no evidence that gender significantly differed across conditions ($\chi^2 = .04, p > .05$).

Instrumentation

Confirmatory factor analyses (Hunter & Gerbing, 1982) were conducted for all scales to test their content validity. Items passing internal consistency and parallelism tests were retained.

Attitudes toward the issue. Attitudes toward binge drinking were measured three times: at pretest, initial posttest, and delayed posttest. The items were bad/good, unfavorable/favorable, negative/positive, disagreeable/agreeable, foolish/wise, unacceptable/acceptable, and wrong/right. The reliability of the attitude scale at pretest was $\alpha = 0.94$ ($M = 3.50, SD = 1.20$), $\alpha = 0.95$ at initial posttest ($M = 3.11, SD = 1.17$), and $\alpha = 0.95$ at delayed posttest ($M = 2.99, SD = 1.16$).

Issue involvement. The issue involvement scale was measured twice: at pretest and initial posttest (pretest: $\alpha = 0.88, M = 4.49, SD = 1.37$; initial posttest: $\alpha = 0.96, M = 4.95, SD = 1.30$). This variable was measured as a control variable.

Source credibility. Source credibility has two dimensions, expertise and

trustworthiness. The reliability of the expertise and trustworthiness scales were 0.85 ($M = 4.72$, $SD = 1.33$) and 0.81 ($M = 4.92$, $SD = 1.23$), respectively. This variable served as a control variable.

Results of Study 2

Test of the Hypothesis

The control variables (issue involvement and source credibility), gender, race, and year in college were not significantly associated with the dependent variable (attitudes). Therefore, they were not considered in the analyses.

H1: If there is no reinforcement, previously formed attitudes after exposure to a persuasive message are likely to decay. However, if there is reinforcement, previously formed attitudes are not likely to decay.

Table 4 presents the means and standard deviations for attitudes toward binge drinking at the three tests by essay/no essay conditions. Results show that, in general, participants initially had negative attitudes toward binge drinking ($M = 3.50$, $SD = 1.20$ at pretest), but they changed their attitudes in a further negative direction after exposure to a persuasive message ($M = 3.11$, $SD = 1.17$ at initial posttest, $t(38) = -4.52$, $p < .001$).

ANOVA was conducted to examine the reinforcement effect on attitude decay, and results are summarized in Table 5. Results show a significant interaction effect of

the essay/no essay conditions among the three tests, $F(2, 74) = 9.62, p < .001$, partial eta-squared = 0.21. Figure 5 indicates that this interaction may be attributed to the differing pattern of decay graph (the line between attitude at initial posttest and delayed posttest) of the essay condition compared with the decay graph of the no essay condition. Here, attitudes in the essay condition changed less favorable toward binge drinking from the initial posttest to delayed posttest. For the no essay condition, attitudes changed more favorable toward binge drinking from the initial posttest to delayed posttest.

The interaction effect was further explored by examining the pattern of attitude scores between the essay and no essay conditions. Analyses showed that the essay condition's attitudes were significantly less favorable than the no essay condition's, both at initial posttest, $t(38) = 2.45, p < .05$, and at delayed posttest, $t(38) = 4.29, p < .001$. In addition, in the no essay condition, attitudes changed significantly more favorable from initial posttest to delayed posttest, $t(18) = -3.13, p < .05$, and the attitude score at delayed posttest did not differ from the attitude score at pretest, $t(17) = -1.88, p > .05$, suggesting that previously formed attitudes toward binge drinking decayed to initial positions with no essay. However, in the essay condition, the attitude score at initial posttest did not differ from the attitude score at delayed posttest, $t(20) = 0.95, p > .05$, and attitudes at delayed posttest were significantly less favorable than attitudes at pretest, $t(20) = 3.14,$

$p < .05$, showing that previously formed attitudes toward binge drinking did not decay to initial positions with the use of an essay.

Method of Study 3

Topic Selection and the Persuasive Message

This study focused on the decay in attitudes newly formed in the positive direction after exposure to a persuasive message. It employed the topic of apheresis donation² to produce not well-formed initial attitudes, and to allow positive attitude formation. Lee (2004) showed that aphaeresis donation is such a new topic that most people are not familiar with it and, as a result, do not have well-formed attitudes toward the issue. The persuasive message was designed to promote apheresis donation and emphasized the help others value, such that aphaeresis donation would help patients and their families.

Design and Data Analysis

This experiment used a pretest, initial posttest, and delayed posttest design. Attitudes toward apheresis donation were measured in the three tests and analyzed using 3 (three tests) x 2 (essay/ no essay) ANOVA. At pretest, attitudes toward apheresis donation before exposure to a persuasive message and issue involvement were measured. At posttest, attitudes toward apheresis donation after exposure to a persuasive message,

issue involvement, and source credibility were measured. After 21 days, participants were randomly assigned to either the essay or no essay condition to manipulate the independent variable. The essay condition asked people to write an essay about the importance of “helping others.” At delayed posttest, their attitudes toward apheresis donation were measured.

Participants

Forty-six students at a major midwestern university participated in the study. Five students were unavailable at follow-up. Therefore, forty-one undergraduate students’ responses were retained for analyses. Participation was voluntary and the investigator assured confidentiality.

Of these participants, 20 students participated in the essay condition (E), and 21 students participated in the control condition (C). The sample was composed of 22 females (53.7%) and 19 males (46.3%). They ranged in age from 18 to 35 years, with an average age of 20.80 years ($SD=2.53$). Among them, 37 were Caucasian (90.2%), 3 were African American (7.3%), and one person was unidentifiable (2.4%). The majority of participants were juniors (53.7%), followed by seniors (24.4%), sophomores (9.8%), freshmen (7.3%), and others (4.9%). Most participants were not familiar with

(M = 1.63, SD = 1.26) or had not heard of apheresis donation (M = 1.59, SD = 1.22) before the study.

Statistics show no evidence that participants' level of knowledge, $t(1, 39) = -1.84$, $p > .05$, familiarity with apheresis donation, $t(1, 39) = -1.62$, $p > .05$, or age, $t(1, 39) = 0.62$, $p > .05$, differed between conditions. In addition, there was no evidence that gender significantly differed across conditions ($\chi^2 = 2.02$, $p > .05$).

Instrumentation

Confirmatory factor analyses (Hunter & Gerbing, 1982) were conducted for all scales to test their content validity. Items passing internal consistency and parallelism tests were retained.

Attitudes toward the issue. Attitudes toward apheresis donation were measured three times: at pretest, initial posttest, and delayed posttest. The items were bad/good, unfavorable/favorable, negative/positive, disagreeable/agreeable, foolish/wise, unacceptable/acceptable, and wrong/right. The reliability of the attitude scale at pretest was $\alpha = 0.92$ (M = 4.13, SD = 0.36), $\alpha = 0.94$ at initial posttest (M = 6.16, SD = 0.83), and $\alpha = 0.99$ at delayed posttest (M = 5.97, SD = 1.08).

Issue involvement. Issue involvement scale was measured twice: at pretest and initial posttest (pretest: $\alpha = 0.90$, M = 4.09, SD = 0.79; initial posttest: $\alpha = 0.90$, M = 5.98,

SD = 0.88). This variable was measured as a control variable.

Source credibility. Source credibility has two dimensions, expertise and trustworthiness. The reliability of the expertise and trustworthiness scales are 0.77 (M = 5.21, SD = 1.09) and 0.80 (M = 5.26, SD = 0.98) respectively. This variable served as a control variable.

Results of Study 3

Test of the Hypothesis

The control variables (issue involvement and source credibility), gender, race, and year in college were not significantly associated with the dependent variable (attitudes). Therefore, they were not considered in the analyses.

H2: Despite the presence or absence of reinforcement, newly formed attitudes, after exposure to a persuasive message, are not likely to decay.

Table 6 presents the means and standard deviations for attitudes toward apheresis donation in the three tests by essay/no essay conditions. Results show that, in general, participants initially did not have well-formed attitudes toward apheresis donation (M = 4.13, SD = 0.36 at pretest),³ but they had newly formed attitudes in the positive direction after exposure to a persuasive message (M = 6.16, SD = 0.83 at initial posttest, $t(40) = 14.52, p < .001$).

ANOVA was conducted to examine the reinforcement effect on attitude decay and results are summarized in Table 7. Results show no significant interaction effect of essay/no essay conditions in the three tests, $F(2, 78) = 0.16, p > .05$, partial eta-squared = 0.004, and no significant main effect of essay/no essay, $F(2, 39) = 1.79, p > .05$, partial eta-squared = 0.04. There was, however, a main effect of the three tests, $F(2, 78) = 124.76, p < .001$, partial eta-squared = 0.76. Figure 6 indicates that this main effect may be attributed to an attitude score increase from pretest to initial posttest. The main effect of the three tests was further explored by examining the pattern of attitude scores among the three tests. Analyses showed that people had significantly more positive attitudes toward apheresis donation at initial posttest than at pretest, $t(40) = -14.52, p < .001$, and attitudes significantly changed less favorably from the initial posttest to delayed posttest, $t(40) = 2.04, p = 0.045$. Furthermore, people showed significantly more favorable attitudes at delayed posttest than at pretest, $t(40) = -10.36, p < .001$. These findings suggest that newly formed attitudes toward apheresis donation after exposure to a persuasive message did not decay to initial attitudinal positions, regardless of essay/no essay conditions, but they did become less favorable over twenty-three days.

CHAPTER 3

DISCUSSION

Persuasion scholars acknowledge that persuasive effects decay over time, but no research has been conducted to examine what kinds of attitude are subject to decay following persuasion. This study suggested that persuasive effects produce two types of attitudes, previously formed attitudes and newly formed attitudes. The goal of this study was to examine attitude decay in previously formed attitudes and newly formed attitudes after exposure to a persuasive message. It also examined if reinforcement affects attitude decay.

This study was composed of three single factor experiments and used a pretest, initial posttest, and delayed posttest design. Study 1 employed the topic of increasing university tuition to examine decay of previously formed attitudes, which were modified in the positive direction after exposure to a persuasive message. Study 2 utilized the topic of binge drinking to investigate attitude decay of previously formed attitudes, which were changed in the negative direction after exposure to a persuasive message. Study 3 used the topic of apheresis donation to examine attitude decay of newly formed attitudes, which were newly formed in the positive direction after exposure to a persuasive message.

At pretest, participants' initial attitudes toward the given issue before exposure to a persuasive message and issue involvement were assessed, and then, they received a persuasive message designed to induce previously formed or newly formed attitudes in the desired direction. The context of the message focused on a certain value. At initial posttest, participants were asked to rate their attitudes toward the issue, issue involvement, and source credibility after exposure to a persuasive message. After 21 days, participants were randomly assigned to either the essay or no essay condition. In the essay condition, participants were asked to compose an essay about the importance of the value presented in the persuasive message, to strengthen the link of value to their previously formed or newly formed attitudes. At delayed posttest, participants in both essay and no essay conditions were asked about their attitudes toward the issue. In the remainder of this chapter, discussion of the key findings and implications for persuasive message design are presented.

Previously Formed Attitudes, Newly Formed Attitudes, Reinforcement, and Attitude

Decay

Hypothesis 1 predicted that previously formed attitudes would decay if there was no reinforcement, but would not decay if there was reinforcement. This hypothesis was consistent with the findings from Studies 1 and 2. In Study 1, people whose attitudes

were modified in the positive direction toward increasing university tuition, showed that their modified attitudes decayed to initial negative positions toward the topic without reinforcement. With reinforcement, however, their attitudes did not decay. In Study 2, people whose attitudes were modified further in the negative direction toward binge drinking after exposure to a persuasive message, showed that their modified attitudes decayed to their initial positions toward the topic without reinforcement. Similar to Study 1, in Study 2, participants' attitudes did not decay with reinforcement. Hypothesis 2 predicted that newly formed attitudes would not decay, regardless of reinforcement because newly formed attitudes are true initial attitudes. The data in Study 3 showed evidence consistent with the prediction. With or without reinforcement, newly formed attitudes toward apheresis donation did not decay to their initial attitudinal positions.

The findings indicate first, not all attitudes are subject to decay. Only previously formed attitudes are subject to decay, but not newly formed attitudes. In terms of the double comparison model of attitude change (Hunter et al., 1976), people who have existing attitudes before receiving persuasive communication are likely to have attitude decay. Their motivation to return to their initial attitudinal position toward the topic might be to reduce discomfort in their belief system. If they see unbalance between held

beliefs and influenced beliefs (by persuasive communication), they are going to endorse their held beliefs. The results also confirm the information integration model suggested by Kaplowitz et al. (1986), showing that information used to form initial attitudes has more influence on the final attitude judgments than persuasive message in the previously formed attitudes.

This is an important finding in light of the fact that many persuasive advertising messages are designed to form new attitudes toward new products. Attitude decay, then, may be considered more importantly when persuasion topics are familiar and social issues such as organ donation, smoking, drinking, and voting. People are likely to be exposed to those issues and might establish attitudes that are hard to maintain change, if successfully changed.

Second, the results show that reinforcement affects attitude decay. The absence of attitude decay in the presence of reinforcement in previously formed attitudes confirms the contention suggested by Higgings and King (1981). They argued that a strong link of attitude to another construct affects attitude accessibility, and consequently strengthens attitudes. The method of writing an essay about the proposed values as reinforcement, may make the values salient among other beliefs associated with the topic; hence, strengthen the link of those values to the formed attitudes.

The reinforcement effect also might be explained by match/mismatch between attitude-relevant cues and information used in attitude formation. Sepupta and Fitzsimons (2004) showed that attitude-relevant cues on delayed judgments affected the stability of brand attitude. They suggested that, when there are attitude-relevant cues on delayed judgments, people compare the inputs used to form initial attitudes with the available attitude-relevant cues at delay. They found that people had stable attitudes toward a brand when there was a match in the comparison. In this study, people also might compare values they think of when they write an essay with those they think of when forming their attitudes toward increasing university tuition and binge drinking. They showed attitude stability because they would find that the information they compared was matched.

Attitude Fluctuation in Newly Formed Attitudes: Not Decay but Variation

Interestingly, however, it was found that newly formed attitudes after exposure to a persuasive message were not consistent, and instead, decreased in the direction of the initial attitudinal positions. The change was not, obviously, decay to initial positions. It is possible that people needed more information to maintain their newly formed attitudes toward apheresis donation. For example, although participants' newly formed positive attitudes toward apheresis donation as a result of external message comparison

were consistent with their belief systems, they may later consider the pain involved in the apheresis donation procedure-- a fact they did not consider during the external message comparison. The lack of sufficient information to support their newly formed attitudes would likely cause an attitude decrease over time. Another possibility to consider is that participants might think of blood donation in deciding their attitudes toward apheresis donation, since these topics are similar in terms of donating blood, and blood donation is familiar to them. Their attitudes toward blood donation, therefore, would affect attitudes toward apheresis donation at initial posttest. However, over time, they may think less of blood donation and think more of other factors associated with apheresis donation, resulting in an attitude decrease toward apheresis donation. Future research should examine these two alternative explanations.

Implication to Persuasive Message Design

The results of the study provide an implication to persuasive message designers who wish to produce a successful persuasive effect for a long time. As was done in the current study, with a message focusing on prevalent values that people generally consider important, it will be effective because there will be a high chance of encountering those values in daily life. Message recipients, then, might have high likelihood of thinking

about these values, activate the connection between formed attitude and related values in their mind, and be likely to keep their modified/formed attitudes for a long time.

Limitations

The main limitation of this study is the small sample size in each study. Due to the small sample size, the statistics calculated in this study might be less accurate than those of a larger sample size, owing to sampling error. Therefore, making generalizations about other samples might be problematic. Another limitation is possible environmental effects in regards to the topic of binge drinking. At the time of data collection, there was a campus-wide campaign on binge drinking prevention.

Appendix C shows the contents of advertisements and posters run in the local newspaper to prevent binge drinking in the period of data collection for the study of attitude decay in binge drinking. The campaign might have influenced subjects' initial negative attitudes toward binge drinking, the additive effect on reinforcement, and consequently, attitude decay. Future research needs to be conducted to examine decay in binge drinking attitudes controlling environmental effects.

Future Research

Studies that address the aforementioned limitations are areas for future research. It would be beneficial to replicate this type of study, using similar or different topics and

a larger sample size in order to understand further attitude decay following persuasion. Additionally, studies need to be completed in which there is an examination of the effect on the need for knowledge toward apheresis donation and attitude change. For example, an examination of attitude decrease with a comparison of people who are provided sufficient knowledge toward apheresis donation after attitude formation, versus those who are not provided any more knowledge could provide additional information. In addition, a study needs to examine whether attitudes toward blood donation influenced attitudes toward apheresis donation, yielding further results on how people express their attitudes toward unfamiliar topics. Future research also needs investigate other types of reinforcement that may prevent attitude decay. Finally, studies are needed that examine the effect of initial attitudinal position (i.e., negative, positive, or neutral) and the direction of the persuasive effort (i.e., positive or negative attitude modification) on attitude decay. These findings may give clues to conditions where attitude decay occurs most frequently.

Conclusion

This study examined decay of previously formed and newly formed attitudes with reinforcement. Because research on the topic at hand has not previously been

completed, this study is somewhat exploratory in that it attempted to begin to look at attitude decay phenomena in persuasion. However, the findings may be useful in understanding this phenomenon, which would inform persuasion scholars as well as persuasion practitioners that previously formed attitudes tend to decay without reinforcement. Additionally, because these questions have not been answered in the persuasion literature, results of this study may help with the development of a conceptual framework to guide future research in attitude decay and the reinforcement of attitudes. This study contributes to the persuasion literature by exploring the way that previously formed and newly formed attitudes decay, showing that strengthening a link of formed/newly formed attitudes to associated values is a way to reduce attitude decay.

ENDNOTES

¹Level of knowledge and familiarity with the given issue were measured by 7-point Likert scales, anchored by strongly disagree and strongly agree. The smaller the number, the less knowledge people have, and the less they have heard about the issue.

² Unlike a “whole blood” donation, in which a unit of whole blood is removed from the body, the aphaeresis process connects the body to a machine that removes only one or two components from the blood, and then returns the rest of the blood to the body.

³ Most studies report that an attitude score of 4 on a 1-7 Likert scale, is a neutral position, indicating that people do not have well-formed positive or negative attitudes. The current study also interpreted an attitude score of 4 in this way.

APPENDICES

APPENDIX A: PERSUASIVE MESSAGES

PERSUASIVE MESSAGE FOR INCREASING UNIVERSITY TUITION

The Michigan State University Board of Trustees is considering a proposal to increase tuition at Michigan State University. The decision will be made based on the students' vote for this proposal. The tuition increase would be used to hire more faculty members for each department and students would be offered many smaller sized classes.

Ultimately, the increased tuition would help students to succeed. Smaller sized classes would allow teachers pay more attention to each student's performance which would result in better skills and grades. Better skills and grades will increase the possibility of finding a good job after graduation. Consequently, MSU students would be offered quality education and would be in a better position in the job market compared to other university students elsewhere. Therefore, MSU students need to vote for this proposal.

PERSUASIVE MESSAGE FOR BINGE DRINKING

The Michigan State University Board of Trustees is considering a proposal to develop campus-wide programs to decrease Binge Drinking at Michigan State University.

The decision will be made based on the students' vote for this proposal. Binge Drinking is consuming five or more drinks at a single sitting for men and four or more for women.

National studies show that almost 45% of college students engage in binge drinking and it causes drunk driving, vandalism on campus, sexual assaults, academic failure, and physical illness. Also, studies show that binge drinkers suffer guilt, regret, and physical injuries as consequences. According to MSU Police Department, most of crimes and accidents occurred on and off campus are related to students' binge drinking and the offenders and the victims suffer mental and physical illness for a long time.

Ultimately, the campus-wide programs would help students stay physically and psychologically healthy. Studies show that one of the reasons students engage in binge drinking is lack of refusal skills for situations in which peer pressure is high. The programs will teach MSU students detailed refusal skills in realistic settings so that they can stay mentally and physically healthy while maintaining good relationships with friends. Therefore, MSU students need to vote for this proposal.

PERSUASIVE MESSAGE FOR APHERESIS DONATION

The Michigan State University Olin Health Center and Sparrow Hospital are asking for apheresis donations from Michigan State University students. Apheresis donation is the donation of one or two components from blood and the rest of the blood returns to the body. According to Olin Health Center and Sparrow Hospital, 35 pints of apheresis components are needed for some Michigan State University students. Also, families of these students are in great grief and long for donations to help their daughters and sons in need.

Ultimately, apheresis donation is for helping others in need. If some MSU students do not get the apheresis component they will die because their surgeries have been delayed while waiting for apheresis components replenishment. Donating apheresis components will save fellow MSU students' lives as well as their families'. Therefore, MSU students needed to donate their apheresis components.

APPENDIX B: BINGE DRINKING ADVERTISEMENTS

- ◆ *Two sideline advertisements of “Celebrate the Spartan Way” were run in the local newspaper during data collection.*

1) One read:

Most MSU Students:

Watch Spartan Sports

Have 0-5drinks when they party

Keep track of the number of drinks they consume

2) The other one read:

When MSU Students drink, most do one or more of the following:

Pace their drinks

Avoid drinking games

Keep track of the number of drinks they have consumed

- ◆ *There were also two posters ran as advertisements in the regular edition of local newspaper twice weekly during data collection*

1) One read:

"What Do Spartans Do?"

Most Spartans:

- Listen to Music to manage stress (97%)
- Stay with the same group of friends the entire time when they go out drinking (78%)
- Play recreational sports (57%)
- Study at least 4 evenings per week (77%)
- Consume 5 or fewer drinks when they party (63%)
- Work for wages during the academic year (61%)
- Keep track of the number of drinks they have consumed

2) The other one read:

"What Do Spartans Think?"

Most Spartans think:

- Academic Study is a priority.

- 83% of MSU Students report academics are their first priority.
- Drinking should be done in Moderation.
- 94% of MSU Students report they disapprove of drinking to the point of passing out; 55% disapprove of other students getting "wasted."
- Drinking is a personal decision.
- 96% of MSU students disapprove of pressuring someone to drink more than they want to.

APPENDIX C: MEASUREMENT RETAINED AFTER CFA

● Attitude Items

- (1) Bad ____:____:____:____:____:____:____ Good
- (2) Unfavorable ____:____:____:____:____:____:____ Favorable
- (3) Negative ____:____:____:____:____:____:____ Positive
- (4) Disagreeable ____:____:____:____:____:____:____ Agreeable
- (5) Foolish ____:____:____:____:____:____:____ Wise
- (6) Unacceptable ____:____:____:____:____:____:____ Acceptable
- (7) Wrong ____:____:____:____:____:____:____ Right

● Issue Involvement Items

- (1) Unimportant ____:____:____:____:____:____:____ Important
- (2) Does not matter to me ____:____:____:____:____:____:____ Matters to me
- (3) Insignificant ____:____:____:____:____:____:____ Significant
- (4) Of no concern ____:____:____:____:____:____:____ Of much concern

● Source Credibility Items

(1) Not knowledgeable ____:____:____:____:____:____:____ Knowledgeable

(2) Not expert ____:____:____:____:____:____:____ Expert

(3) Untrustworthy ____:____:____:____:____:____:____ Trustworthy

(4) Unbelievable ____:____:____:____:____:____:____ Believable

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Table 1. *Attributes of Attitude Strength*

Categories	Attributes
Feature of attitude itself	Extremity
	Intensity
Cognitive structure associated with attitude and attitude object	Attitude accessibility
	Knowledge
	Affect-cognitive consistency
Cognitive process	Amount of elaboration
	Direct experience
Subjective beliefs about attitude and attitude object	Personal importance
	Centrality to the self-concept
	Attitude certainty
	Latitudes of rejection and noncommitment

Table 2. Means and Standard Deviations for Attitudes toward Increasing University Tuition at the Three Tests by Essay and No Essay Condition

	Pretest	Initial Posttest	Delayed Posttest
No essay (n = 23)	M = 2.22, SD = .72	M = 3.39, SD = 1.24	M = 2.41, SD = .95
Essay (n = 27)	M = 2.43, SD = .97	M = 3.62, SD = .97	M = 4.16, SD = .53
All (n = 50)	M = 2.34, SD = .86	M = 3.52, SD = 1.10	M = 3.35, SD = 1.15

Table 3. *ANOVA Summary Table for Attitudes toward Increasing University Tuition*

<i>Source of Variation</i>	<i>Type III Sum of Squares</i>	<i>DF</i>	<i>F</i>	<i>p</i>
<i>Tests of Within-Subjects Effects</i>				
Tests	38.972	2	36.23	.000
Tests x Essay/No Essay	19.31	2	17.96	.000
Error (Tests)	51.631	96		
<i>Tests of Between-Subject Effects</i>				
Intercept	1377.64	1	957.313	.000
Essay/No Essay	19.89	1	13.82	.001
Error	69.08	48		

Table 4. Means and Standard Deviations for Attitudes toward Binge Drinking at the Three Tests by Essay and No Essay Condition

	Pretest	Initial Posttest	Delayed Posttest
No Essay (n = 19)	M = 3.87, SD = 1.17	M = 3.56, SD = 1.14	M = 4.24, SD = 1.53
Essay (n = 21)	M = 3.19, SD = 1.17	M = 2.70, SD = 1.07	M = 2.52, SD = .96
All (n = 40)	M = 3.50, SD = 1.20	M = 3.11, SD = 1.17	M = 3.34, SD = 1.52

Table 5. *ANOVA Summary Table for Attitudes toward Binge Drinking*

<i>Source of Variation</i>	<i>Type III Sum of Squares</i>	<i>DF</i>	<i>F</i>	<i>p</i>
<i>Tests of Within-Subjects Effects</i>				
Tests	3.15	2	4.78	.011
Tests x Essay/No Essay	6.34	2	9.62	.000
Error (Tests)	24.39	74		
<i>Tests of Between-Subject Effects</i>				
Intercept	1307	1	364	.000
Essay/No Essay	34.83	1	9.7	.004
Error	132.86	37		

Table 6. Means and Standard Deviations for Attitudes toward Apheresis Donation at the Three Tests by Essay and No Essay Condition

	Pretest	Initial Posttest	Delayed Posttest
No Essay (n=21)	M = 4.05, SD = .15	M = 6.01, SD = .89	M = 5.82, SD = 1.14
Essay (n=20)	M = 4.21, SD = .48	M = 6.31, SD = .76	M = 6.13, SD = 1.02
All (n = 41)	M = 4.13, SD = .36	M = 6.16, SD = .83	M = 5.97, SD = 1.08

Table 7. *ANOVA Summary Table for Attitudes toward Apheresis Donation*

<i>Source of Variation</i>	<i>Type III Sum of Squares</i>	<i>DF</i>	<i>F</i>	<i>p</i>
<i>Tests of Within-Subjects Effects</i>				
Tests	103.22	2	124.76	.000
Tests x Essay/No Essay	.13	2	.16	.851
Error (Tests)	32.27	78		
<i>Tests of Between-Subject Effects</i>				
Intercept	3614.41	1	3124.76	.000
Essay/No Essay	2.08	1	1.79	.188
Error	45.11	39		

Figure 1. *Speculation of Factors Affecting Attitude Persistence*

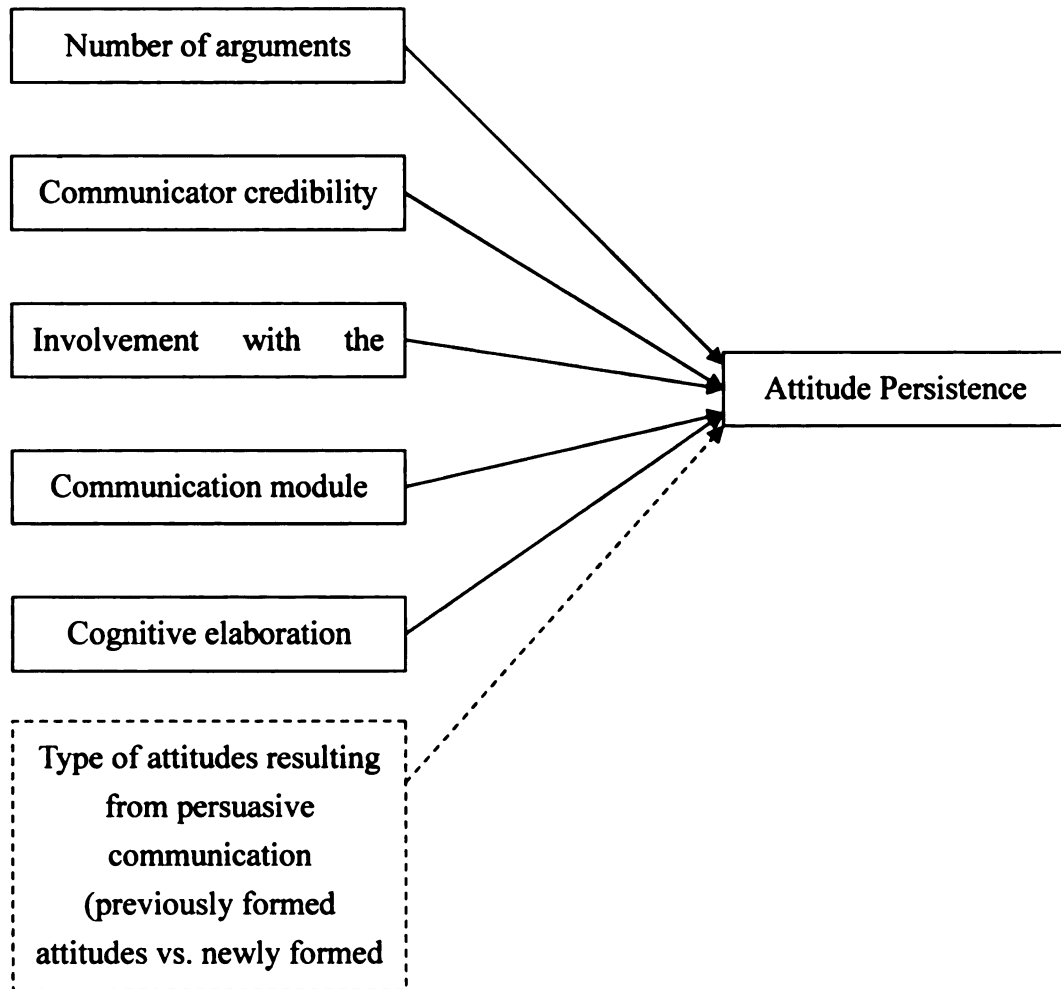


Figure 2. *Factors Affecting Attitude Accessibility*

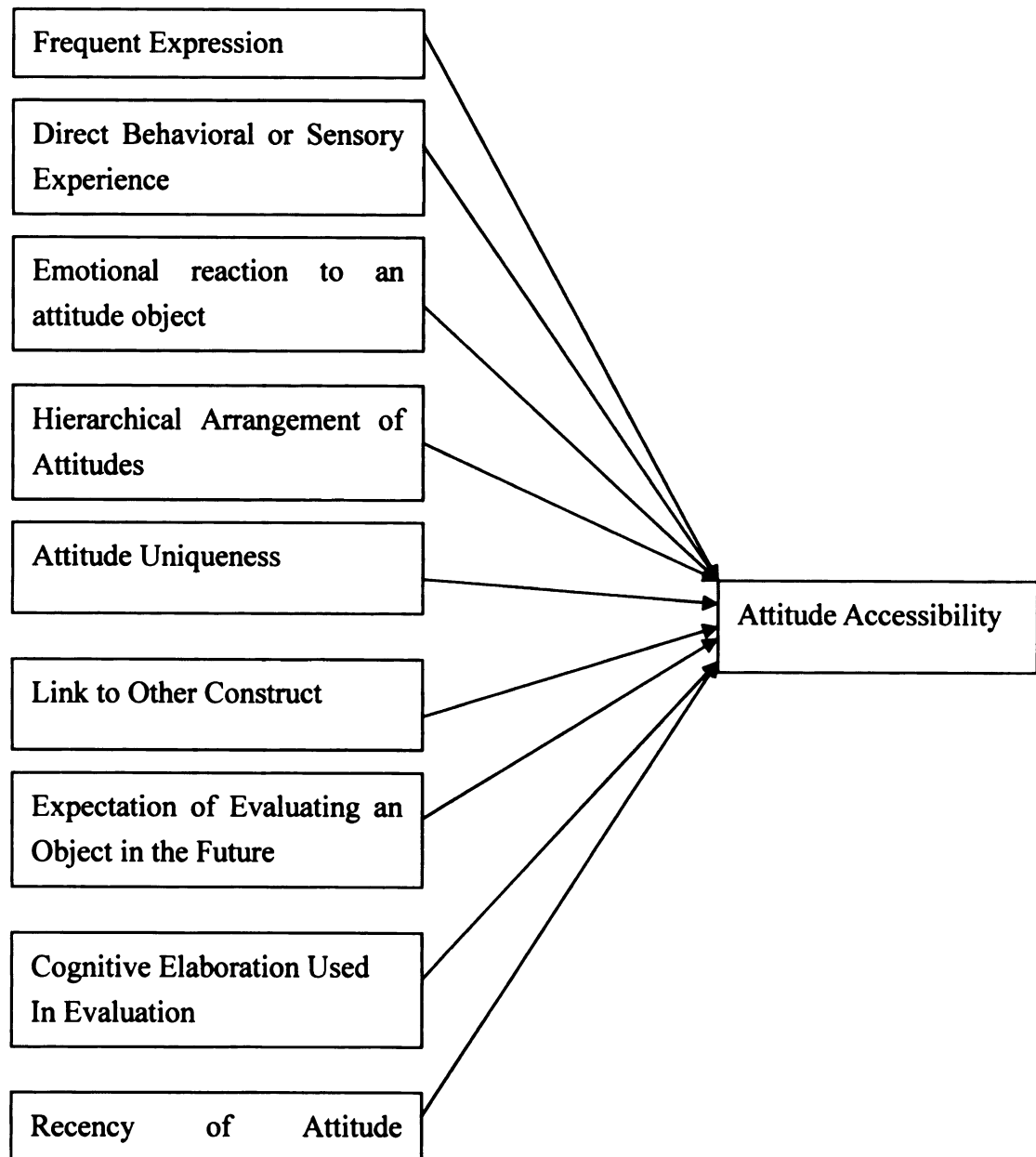


Figure 3. *Design of Study*

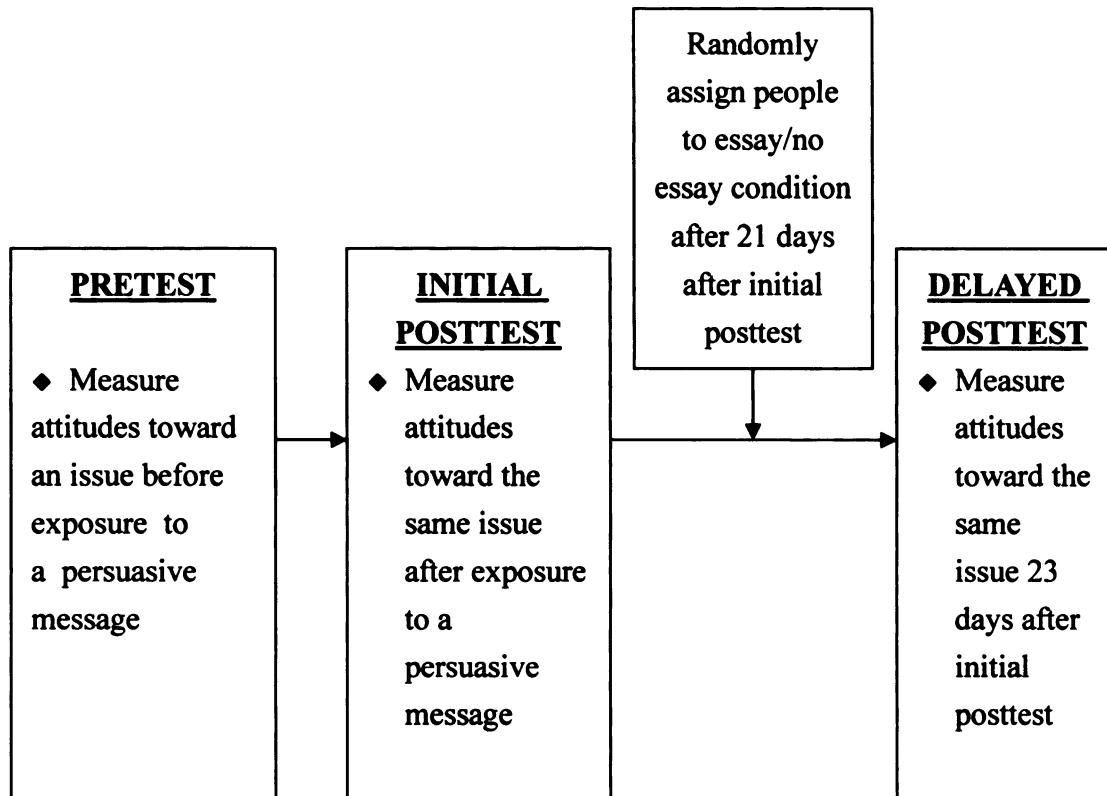


Figure 4. *Attitudes Change toward Increasing University Tuition as a Function of Essay/No Essay and the Three Tests*

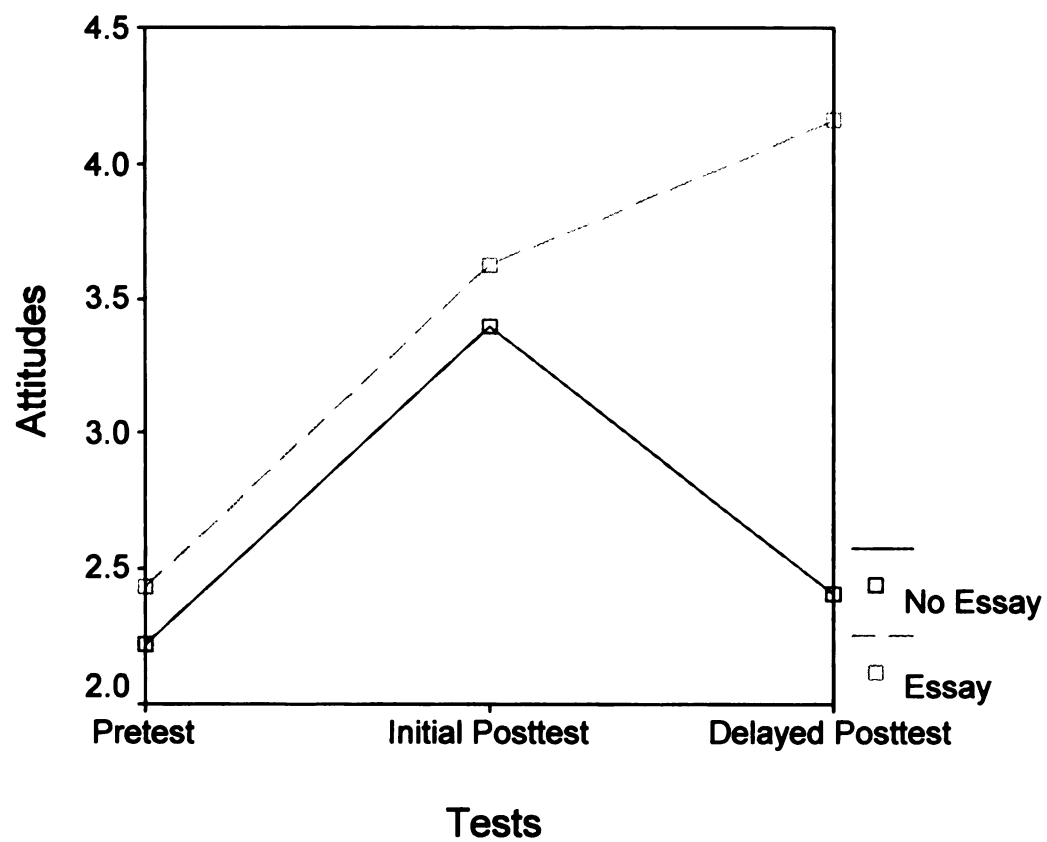


Figure 5. *Attitudes Change toward Binge Drinking as a Function of Essay/No Essay and the Three Tests*

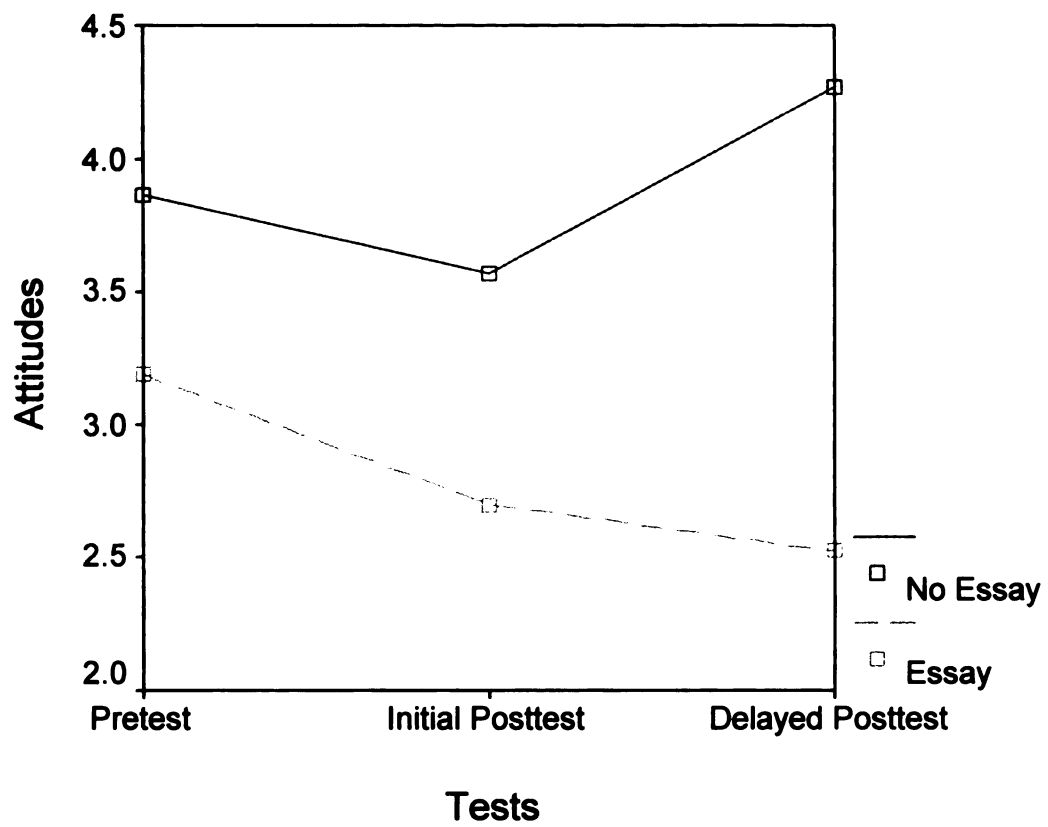
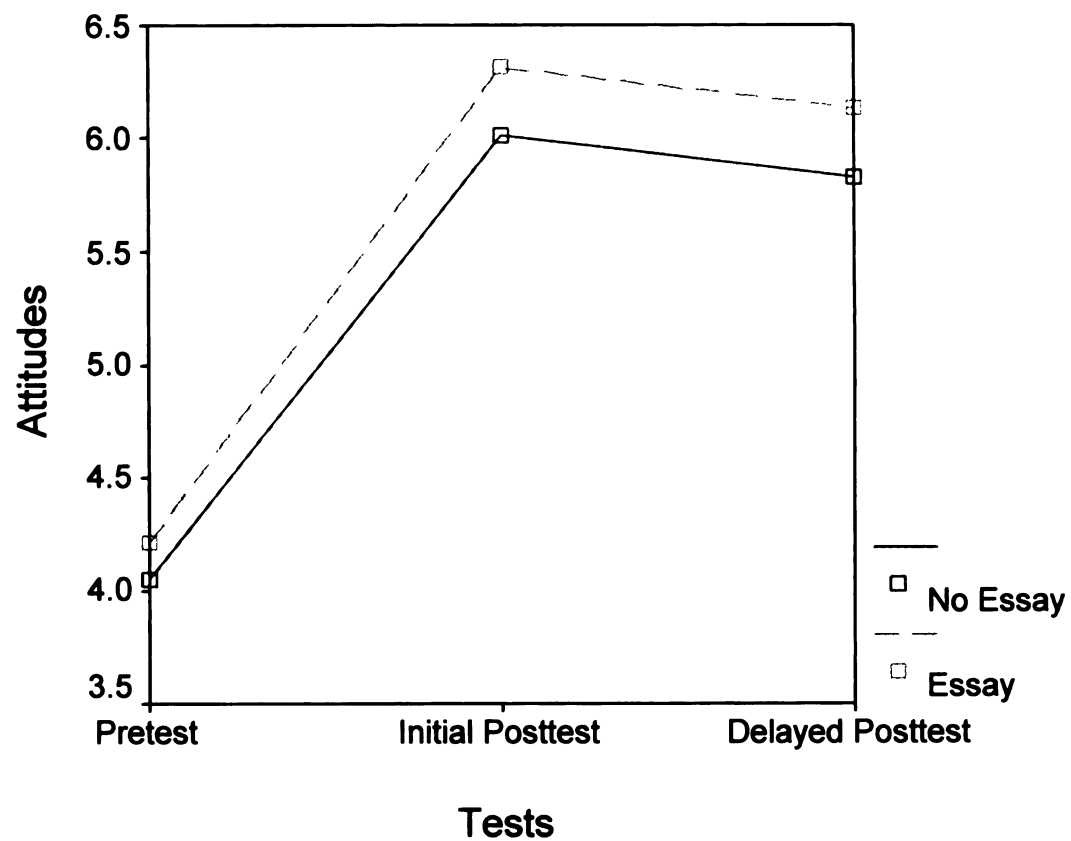


Figure 6. *Attitudes Change toward Apheresis Donation as a Function of Essay/No Essay and the Three Tests*



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