SOURCE MERE EXPOSURE AND PERSUASION

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Recent research on the “mere exposure effect” has demonstrated that repeated exposure to a stimulus induces diffuse positive affect—the source or target of which individuals are unaware—capable of positively influencing individuals’ preferences for that stimulus, similar stimuli, and quite novel stimuli. In this dissertation, four studies have tested the notion that repeated exposure to the source (communicator) of a persuasive communication similarly induces diffuse positive affect that, ultimately, favorably influences individuals’ attitudes toward that communication.

In Study 1, participants were initially presented a female face. Later, half of the participants were shown the same face, and another half were shown a novel face, as being the author of an upcoming essay. All participants then read a persuasive essay and indicated their attitudes toward the essay, thoughts about the essay, and liking for the author. Results indicated that participants who had been repeatedly exposed to the essay author, relative to those who had not, formed more favorable attitudes and generated more favorable thoughts about the essay. Furthermore, this effect was partially mediated by message thoughts. In Study 2, these effects of repeated source exposure—using written names instead of faces—were replicated. However, the effect was eliminated under conditions in which, after the initial source exposure, participants encountered a negative experience description that likely preempted the inducement of diffuse positive affect. In Study 3, two faces were first subliminally or supraliminally exposed to
participants repeatedly. Again, results revealed the source exposure effect on attitudes, but this effect was not mediated.

A diffuse-positive-affect-channeling hypothesis is offered to explain the mediational differences observed between the first two studies and Study 3. This hypothesis predicts that diffuse positive affect may be “channeled” towards any category of preference evaluation made during or immediately after repeated stimulus exposure. Therefore, this affect may impact source liking, liking for irrelevant stimuli, essay attitudes directly, and thoughts depending on the category of preference evaluation made after the repeated exposure, a concept that Study 4 sought to investigate. Although the no theoretically important results were observed in Study 4, convergent evidence is consistent with the affect-channeling hypothesis.

Approved: G. Daniel Lassiter

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Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>3</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>5</td>
</tr>
<tr>
<td>List of Tables</td>
<td>12</td>
</tr>
<tr>
<td>List of Figures</td>
<td>13</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>14</td>
</tr>
<tr>
<td>Mere Exposure and Liking</td>
<td>15</td>
</tr>
<tr>
<td>Possible Mechanisms Underlying Exposure Effects</td>
<td>16</td>
</tr>
<tr>
<td>Diffuse Affect and Mere Exposure: What are the Effects?</td>
<td>20</td>
</tr>
<tr>
<td>Source Mere Exposure and Persuasion</td>
<td>26</td>
</tr>
<tr>
<td>Overview of Studies 1 through 3</td>
<td>33</td>
</tr>
<tr>
<td>STUDY 1</td>
<td>35</td>
</tr>
<tr>
<td>Method</td>
<td>35</td>
</tr>
<tr>
<td>Participants and Design</td>
<td>35</td>
</tr>
<tr>
<td>Procedure</td>
<td>35</td>
</tr>
<tr>
<td>Independent Variables</td>
<td>38</td>
</tr>
<tr>
<td>Initial exposure</td>
<td>38</td>
</tr>
<tr>
<td>Essay author exposure</td>
<td>38</td>
</tr>
<tr>
<td>Argument strength</td>
<td>38</td>
</tr>
<tr>
<td>Dependent Variables</td>
<td>40</td>
</tr>
<tr>
<td>Attitude index</td>
<td>40</td>
</tr>
<tr>
<td>Liking measure</td>
<td>41</td>
</tr>
</tbody>
</table>
Thought index ................................................................. 41
Relevance measure ......................................................... 42
Additional measures ..................................................... 42

Results .............................................................................. 42
Personal Relevance ......................................................... 42
Attitudes .......................................................................... 43
Liking Measure ................................................................. 44
Thought Index ................................................................... 44
Mediational Analysis ........................................................ 44

Discussion ......................................................................... 45

STUDY 2 ............................................................................ 48

Method .............................................................................. 48
Participants and Design ..................................................... 48
Procedure .......................................................................... 48

Independent Variables ..................................................... 50

Experience descriptions ................................................... 50
Initial exposure ............................................................... 50
Essay author exposure ..................................................... 50

Essay ................................................................................ 51

Dependent Variables ........................................................ 51

Results .............................................................................. 51
Personal Relevance and Manipulation Check ...................... 52

Attitudes ........................................................................... 52
Liking Measure ........................................................................................................... 54

Thought Index ........................................................................................................... 54

Mediational Analysis ................................................................................................. 54

Discussion .................................................................................................................. 55

STUDY 3 ..................................................................................................................... 60

Method ....................................................................................................................... 60

Participants and Design ............................................................................................. 60

Procedure .................................................................................................................. 61

Independent Variables ............................................................................................. 62

Initial exposure ......................................................................................................... 62

Essay author exposure ............................................................................................... 63

Argument strength .................................................................................................... 63

Dependent Variables ................................................................................................. 64

Results ....................................................................................................................... 65

Personal Relevance ................................................................................................... 65

Attitudes .................................................................................................................... 66

Liking and Recognition Measures ............................................................................ 66

Thought Index .......................................................................................................... 68

Mediational Analysis ................................................................................................. 69

Discussion .................................................................................................................. 69

The Differences between Studies 1-2 and 3: A Hint at Variable Mediation .......... 72

Conceptual Overview of, and Hypotheses for, Study 4 ........................................... 78
Hypothesis 1:
The Source Mere Exposure Effect on Attitudes

Hypothesis 2: Message Thoughts
as a Dependent Measure and a Mediator

Hypothesis 3:
Source Liking as an Effect and a Mediator

Hypothesis 4:
The Direct effect of Mere Repeated Source Exposure

Hypothesis 5:
Manipulation Checks Before and After the Essay

STUDY 4

Method

Participants and Design

Procedure

Independent Variables

Initial exposure

Essay author exposure

Prompt (pre-essay questions)

Essay

Dependent Variables

Results

Affect Channeling

Personal Relevance
List of Tables

Table                  Page

1. Means and N’s for the Attitude Index, Message-Thought Index, and Liking Measure as a Function of Exposure to the Source of the Persuasive Communication and Argument Strength (Study 1).................................................................................................................................129

2. Means and N’s for the Attitude Index, Message-Thought Index, and Liking Measure as a Function of Exposure to the Source of the Persuasive Communication and Valence of Experience Descriptions (Study 2).................................................130

3. Means and N’s for the Attitude Index, Message-Thought Index, and Liking Measure as a Function of Exposure to the Source of the Persuasive Communication and Argument Strength (Study 3)........................................131

4. Means and N’s for the Attitude Index, Message-Thought Index, and Liking Measure as a Function of Exposure to the Source of the Persuasive Communication and Prompt (Study 4).................................................................132
List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Representation of the mediational analysis of Study 1.</td>
<td>133</td>
</tr>
<tr>
<td>2.1.</td>
<td>Representation of the mediational analysis for the neutral experience-description condition of Study 2.</td>
<td>134</td>
</tr>
<tr>
<td>2.2.</td>
<td>Representation of the mediational analysis for the negative experience-description condition of Study 2.</td>
<td>135</td>
</tr>
<tr>
<td>3.</td>
<td>Representation of the mediational analysis of Study 3.</td>
<td>136</td>
</tr>
<tr>
<td>4.1.</td>
<td>Representation of the expected significant mediational pathways for the polygon-prompt condition of Study 4.</td>
<td>137</td>
</tr>
<tr>
<td>4.2.</td>
<td>Representation of the expected significant mediational pathways for the ability-prompt condition of Study 4.</td>
<td>138</td>
</tr>
<tr>
<td>4.3.</td>
<td>Representation of the expected significant mediational pathways for the liking-prompt condition of Study 4.</td>
<td>139</td>
</tr>
<tr>
<td>4.4.</td>
<td>Representation of the expected significant mediational pathways for the no-prompt condition of Study 4.</td>
<td>140</td>
</tr>
</tbody>
</table>
INTRODUCTION

As advertisers have long known, celebrities are excellent communicators of messages that are intended to sway an audience into adopting positive attitudes towards various consumer products. Within the attitude and persuasion literature (see Petty & Wegener, 1998), numerous source (or communicator) variables have been identified that likely contribute to famous individuals’ overall persuasiveness. For example, celebrities tend to be attractive, well liked, trustworthy, credible, and intelligent. These characteristics have been identified as increasing communicator persuasiveness, at least under certain conditions. Interestingly, there may be a less obvious—and previously overlooked\(^1\)—factor that contributes to the persuasiveness of celebrities: the fact that audiences are repeatedly exposed to these famous individuals. Drawing on recent research findings and discussions on the effects of mere exposure on liking (Monahan, Murphy, & Zajonc, 2000; Murphy, Monahan, & Zajonc, 1995; Zajonc, 1998, 2000, 2001) combined with common models of persuasion (e.g., Chaiken, 1987, Petty & Wegener, 1998), it is argued within this dissertation that minimal and largely incidental prior

\(^1\) Quite recently (in June, one month prior to the final version of this dissertation), Weisbuch, Mackie, and Garcia-Marques (2003) published an article in which the effects of repeated source exposure on attitudes are discussed and investigated. However, this article was published after the development of all current hypotheses and after all of the data for the studies reported in this dissertation was collected. Thus, all of the hypotheses and studies reported in this dissertation are independent of the Weisbuch et al. article. This article will be discussed in depth, however, within the General Discussion.
exposure to the source of a communication is sufficient to enhance the persuasiveness of his or her message. Three experiments are presented that provide support for this proposition and a fourth study was conducted to further investigate these findings, although no meaningful effects were obtained for this study.

Mere Exposure and Liking

Over 30 years of research has demonstrated that mere exposure to a stimulus can influence individuals’ liking for that stimulus. In describing the mere exposure effect, Zajonc (1998) commented, “if an individual is given perceptual or cognitive access to a novel (previously not encountered) stimulus, the liking for the stimulus will grow with repeated exposures and it will grow logarithmically” (p. 614). That is, merely being exposed to a new stimulus increases liking for that stimulus even in the absence of rewards, overt conditioning, or affective associations. In initial tests of this idea, Zajonc (1968) exposed participants to nonsense words and Chinese ideographs 0-25 times (Studies 1 and 2, respectively). Both studies found a positive relationship between exposure frequency and ratings of the “goodness” of the meanings of the novel stimuli, presumably indicative of liking for the more frequently exposed stimuli. In Study 3, Zajonc exposed participants to faces 0-25 times. Again, a positive relationship between exposure frequency and liking was obtained.

An even more dramatic demonstration of the mere exposure effect was later reported by Kunst-Wilson and Zajonc (1980). These researchers presented participants with various polygons for 1 ms durations—well below the threshold of recognition (i.e., subliminally). For the second phase of their experiment, participants were shown polygon pairs, each consisting of one polygon to which the participants had previously been
subliminally exposed and another completely novel polygon. Participants were asked to
report which of the two polygons they preferred and which they had previously seen.
Results indicated that participants liked subliminally presented polygons more than novel
ones even though conscious recognition for the previously exposed stimuli was at chance
levels. Therefore, individuals can come to like a stimulus via exposure, even though they
may not consciously be aware of their prior exposure experience.

The mere exposure effect has been replicated with numerous exposure stimuli
such as words, faces, shapes, odors, and music. It has been observed over many
presentation durations and frequencies, and following various delay periods (for reviews,
see Bornstein, 1989, Harrison, 1977, and Zajonc, 1998). Indeed, in a meta-analysis of this
work reported by Bornstein (1989), the mere exposure effect has proven to be quite
robust and reliable. Thus, one’s history of exposure to a stimulus appears to be a key
factor on the extent to which the stimulus is liked.

Possible Mechanisms Underlying Exposure Effects

Several explanations for exposure effects have been offered. One explanation,
proposed by Harrison (1968) and Matlin (1970), has been described in a theory of
response competition. According to this theory, novel stimuli, via associations to variably
related stimuli, stimulate a variety of response possibilities. Further, this assortment of
responses, each component of which is in competition for production, leads to
discomfort. With repeated exposure, one or a few responses are strengthened and gain
dominance whereas others weaken and fade. As a result, individuals like the initially
novel stimulus more as the aversion that resulted from response competition is reduced
through repeated stimulus exposure. In a similar vein, an orienting-reflex explanation for
exposure effects may be built from Sokolov’s (1963) notion that novel stimuli initially trigger an aversive or protective response that wanes after repeated exposures occur in the absence of harm. Thus, once individuals habituate to the aversive orienting reflex experienced upon the encounter of a novel stimulus, the once novel stimulus is liked relative to completely novel stimuli. Casting doubt on the validity of these accounts however, Harmon-Jones and Allen (1996) have obtained facial electromyography (EMG) data in which no rise in negative affect was detected as a result of exposure to unfamiliar stimuli.

Other explanations for the mere exposure effect have been proposed in which exposure is thought to increase stimulus familiarity that, in turn, increases stimulus liking (e.g., Berlyne, 1970; Stang, 1973). Specifically, Berlyne suggests that increased stimulus exposure at first leads to positive habituation and stimulus liking that, after many exposures, wanes as tedium sets in. However, Stang suggests that repeated stimulus exposure allows increased learning about the stimulus that leads to heightened stimulus liking. Importantly, both explanations rest on the assumption of stimulus familiarity, but more recent research (e.g., Kunst-Wilson & Zajonc, 1980) has demonstrated that a stimulus need not be familiar, recognized, or indeed consciously perceived during initial exposure phases, in order to enhance the liking for that stimulus.

Another common explanation, proposed by Jacoby and colleagues (Jacoby, Kelly, & Dywan, 1989; Whittlesea, Jacoby, & Girard, 1990; see also Smith, 1998), holds that exposure effects on stimulus liking result from a subjective sense of perceptual fluency. Specifically, it has been suggested that a stimulus becomes more easily perceived with increasing exposure frequency and that this resulting perceptual ease is interpreted as
stimulus liking. In short, liking is argued to be a proxy for recognition memory. Although several criticisms of this explanation have been waged (see Zajonc, 1998), perhaps the clearest counterevidence—which will be described in greater detail below—demonstrates that liking that results from repeated exposure to one stimulus can generalize to novel, and very different, stimuli (Monahan, Murphy, & Zajonc, 2000).

A fairly simple, classical-conditioning, explanation for exposure effects on liking has recently been offered by Zajonc (2001). In classical-conditioning situations, a conditioned stimulus (CS; i.e., one that does not initially elicit the response of interest) is promptly followed by an unconditioned stimulus (US; i.e., one that does elicit the response of interest—the unconditioned response [UR]). After repeated CS-US pairings, the CS becomes associated with the US and comes to elicit the same response normally triggered by the US. Applying this principle to exposure experiments/situations, Zajonc (2001) notes that after participants are exposed to a novel stimulus (the CS) they are exposed to neither positive nor negative consequences—that is, this CS becomes associated with a benign situation (US). Furthermore, because, by definition, individuals do not suffer within benign situations, the US should elicit an approach tendency or positive affect (UR). Therefore, as a result of individuals’ repeated exposure to a stimulus, the stimulus itself should come to elicit this approach tendency or positive affect.

Importantly, the positive affect posited to result from repeated stimulus exposure possesses fairly unique properties. According to Zajone’s (2001) logic, the stimulus that is repeatedly presented is paired with the absence of an aversive event—a condition that “is diffuse and unattached to any particular object in the immediate environment”
Thus, the positive affect resulting from repeated stimulus exposure is also diffuse, unspecified, and even nonconscious. This nonconscious or diffuse affect—the source and/or target of which one is not aware—is described metaphorically by Murphy et al. (1995), “…nonconscious affect need not be dedicated; it need not be about a particular target. In the extreme case, nonconscious affect is more like liquid. It can disperse, scatter, permeate, combine, fuse, blend, spill over, and become attached to totally unrelated stimuli” (p. 590). Thus, mere repeated exposure to a stimulus can create nonconscious or diffuse positive affect that not only can manifest in liking for that stimulus, but, theoretically, more liking for any stimulus. The notion of a link between a general approach tendency and the evaluation of an encountered object is related to research conducted by Cacioppo, Priester, and Berntson (1993). Specifically, Cacioppo et al. found that participants evaluated an ideograph more favorably if they were pulling their arms toward themselves (akin to an approach tendency) relative to pushing their arms away from themselves.

Finally, related to Zajonc’s (2001) account, positivity offset, as discussed by Cacioppo, Gardner, & Berntson (1997), may also be used to formulate an explanation for exposure effects. Specifically, it has been suggested that a weak approach tendency is activated when one encounters a neutral and novel stimulus. Furthermore, if individuals have an evaluative goal about this stimulus and learn neutral information about it (e.g., that the stimulus [a novel fish] rests at regular intervals), this stimulus is rated more positively, even though objectively neutral information was provided about the stimulus. This is suggested to occur because no negative information about the stimulus has been presented and, therefore, any inclination to avoid the stimulus becomes less likely. Thus,
it might also be that in benign and neutral situations, repeated exposure to a stimulus
increases an initial positive approach tendency. Based on current theorizing, however, it
is unclear whether the approach tendency discussed by Cacioppo et al. (1997) would be
dedicated to the repeatedly exposed stimulus, or could be diffuse and influence
preferences of other novel stimuli (cf. Zajonc, 2001). Additionally, it is unclear whether
positivity offset will be enhanced via repeated exposure per se, or whether additional
information must be learned about the stimulus for this particular effect to occur.

Finally, positivity offset was derived from a finding in which a rat encountered a
goal box and was either close to, or far away from, that target (Miller, 1959).
Additionally, tests of positivity offset (e.g., Cacioppo et al., 1997) have induced
participants to have an evaluative goal (e.g., impression formation). Taken together, it is
uncertain whether positivity offset will be observed within situation in which no
evaluative goal has been triggered (e.g., if participants are passively or unknowingly
presented stimuli). Overall then, positivity offset may prove useful as an explanation of
exposure effects, but further theorizing and research must occur investigating the
possibility that positivity offset can have diffuse effects in the absence of an evaluative
goal. Arguably, Zajonc’s (2001) explanation for exposure effects most clearly explains
the diffuse nature of exposure effects observed in recent literature.

Diffuse Affect and Mere Exposure: What are the Effects?

The existence of diffuse affect, in and of itself, has been demonstrated in several
experiments (e.g., Murphy & Zajonc, 1993; Winkielman, Zajonc, & Schwarz, 1997). In
one representative, and thoroughly counterbalanced, experiment, Murphy and Zajonc
(1993, Study 1) presented to participants either a polygon, a positive-affect prime (happy
face), a negative-affect prime (angry face), or no prime followed by one of several
Chinese ideographs. For approximately half of the participants, the stimulus preceding a
given ideograph was presented subliminally (4 ms) whereas for the other half of the
participants, the stimulus preceding a given ideograph was presented at an optimal
viewing duration (1000 ms). Each participant experienced 45 such trials—5 no-prime, 20
polygon-prime, 10 positive-affect prime, and 10 negative-affect prime trials—after each
of which they were asked to indicate how much they liked the most recently presented
Chinese ideograph.

The participants in Murphy and Zajonc’s experiment reported liking the
ideographs more when they were subliminally preceded by the positive-affect prime than
when they were subliminally preceded by the negative-affect prime. Additionally,
participants reported liking the ideographs more when they were subliminally preceded
by the positive-affect prime than when they were preceded by the affectively-neutral
polygon prime or no prime (neither of which significantly differed from the midpoint of
the scale). The opposite pattern was observed when the ideographs were subliminally
preceded by the negative-affect prime. Importantly, no participant in the subliminal
conditions reported being aware of the primes, likely indicating that the affect that
influenced participants’ liking for the ideographs was nonconscious. Finally, no priming
effects occurred for the optimal viewing conditions, a result consistent with the notion
that the conscious affect was specified and tied to the faces whereas the nonconscious
affect induced from the subliminal primes was unspecified, diffuse, and capable of
influencing liking toward unrelated stimuli.
Further testing the hypothesis that nonconscious affect is diffuse whereas affect arising from a known source is specified and thus constrained, Murphy et al. (1995) conducted a series of experiments combining the affect-priming and mere exposure methodologies. As discussed in the previous section, the positive affect resulting from repeated exposures has been suggested to be diffuse and nonconscious because the source of such positive affect is vague—for both subliminal and optimal exposure situations. Consistent with this assumption, individuals who have participated in mere exposure experiments almost never indicate awareness of the relationship between the frequency of stimulus exposure and liking for that stimulus (Murphy et al., 1995). Because repeated stimulus exposure and subliminal affective priming produce, or have been hypothesized to produce, diffuse affect, Murphy et al. (1995) have suggested that the affect resulting from these two sources should combine in an additive fashion. To test this hypothesis, two studies were conducted in which participants were subliminally (Study 1) or optimally (Study 2) exposed to one set of Chinese ideographs once and another set three times. Later, during a rating phase, participants indicated their level of liking for each of the ideographs from the exposed two sets as well as a third novel set. However, immediately before each ideograph was presented for rating, a subliminal negative-affect prime (angry face), a subliminal positive-affect prime (happy face), or no prime was flashed to participants.

In both studies a main effect of exposure frequency on ideograph-liking was obtained such that ideographs that were presented three times were better liked than ideographs shown once which, in turn, were better liked than novel ideographs. Also, consistent with the notion that repeated stimulus exposure, be it subliminal or conscious,
induces affect that is diffuse and capable of fusing with the diffuse affect resulting from subliminal affect primes, a main effect of the affective primes was also obtained. Specifically, participants liked ideographs that were preceded by a subliminal positive prime more than non-primed ideographs that were, in turn, liked better than the ideographs that were preceded by a subliminal negative prime. Thus, the hypothesis that the diffuse affect induced by repeated exposure and subliminal affective primes combines in an additive fashion (i.e., no Priming x Exposure interaction was obtained) was supported.

Importantly, when these experiments are replicated using consciously presented affective primes (Studies 3 and 4), this additive effect is not observed. This null effect of affective prime is argued to result from the fact that the affect induced from the conscious primes is specified—the source of the affect is known and, thus, tied to that source. Therefore, the affect resulting from these primes was less likely to influence the unrelated judgments of liking for the ideographs. However, a main effect of exposure frequency was obtained identical to that observed in Studies 1 and 2, indicating that the affect induced by repeated exposure was diffuse and, therefore, more likely to influence judgments of liking for the ideographs. Overall then, the studies reported by Murphy et al. (1995) lend strong support to the notion that repeated exposure, like subliminal affective primes, induces diffuse affect.

If repeated stimulus exposure does induce diffuse positive affect, as the experiments conducted by Murphy et al. (1995) indicate, then it should be expected that this affect will influence individuals’ liking not only for the specific stimuli presented, but also for similar and even unrelated novel stimuli. This is because the nature of diffuse
affect allows it to “spill over” and influence assessments of whatever is currently being judged (Zajonc, 2001). In fact, Monahan et al. (2000) have argued that this potential generalized effect of repeated exposure may result in an elevation of one’s overall mood state. That is, this presumed generalized effect of repeated exposure might result from an enhanced mood that then influences preferences for presented stimuli.

The possibility that repeated stimulus exposure positively affects individuals’ moods was recently tested by Monahan et al. (2000, Study 1). In their experiment, half of the participants were subliminally presented 5 Chinese ideographs five times each (repeated exposure) whereas the other participants were presented 25 distinct ideographs (single exposure). The results indicate that participants in the repeated exposure conditions reported their current mood as being happier than did participants in the single exposure condition. However, the meaning of this result should be approached with caution. As mentioned earlier, the diffuse positive affect (or general approach tendency; see Zajonc, 2001) that results from repeated stimulus exposure is theorized to influence whatever preference judgments are at hand (in fact, see Monahan et al.’s [2000] Study 2 below). Therefore, participants in this experiment should also have been likely to report more liking for the color red if they had been in the repeated-exposure conditions than if they had been in the single-exposure conditions. Thus, it is no more likely of a conclusion that exposure effects ultimately occur due to an elevation in mood relative to an increased preference for the color red. Rather, it seems more parsimonious to conclude that, as Zajonc (2001) suggests, repeated stimulus exposure in the absence of harm activates a general approach tendency or diffuse positive affect.
With their Study 1 finding, Monahan et al. (2000) reasoned that the overall positive mood that results from repeated stimulus exposures, which is non-specified and diffuse, might cause any stimulus to become better liked. Testing this notion in their second study, Monahan et al. (2000) subliminally exposed participants to either a set of Chinese ideographs or a set of polygons. Within these sets, the component stimuli were either presented only once (single exposure) or five times (repeated exposure). Then, in a test phase, participants reported their liking for the stimuli to which they were previously exposed (old), stimuli that were very similar to those previously presented (similar; e.g., novel polygons if they were exposed to polygons earlier), or stimuli that were very different from those previously presented (novel; e.g., novel Chinese ideographs if they were exposed to polygons earlier). Analyses revealed a main effect of exposure frequency such that participants in the repeated exposure conditions liked the rated stimuli more than participants in the single exposure conditions. This held true for old stimuli, similar stimuli, and completely novel stimuli. Additionally, there was an overall main effect of test stimulus. Closer analyses of this main effect revealed that both the old stimuli and the similar stimuli—which were liked at comparable levels, thus demonstrating considerable generalization of liking to similar targets—were better liked than the novel stimuli. Overall, the results of Monahan et al.’s (2000) second study indicate that the positive affect created by repeated stimulus exposure is diffuse enough to influence liking for the same, similar, and completely novel stimuli—although the effects of liking are strongest for the stimuli to which participants were repeatedly exposed and highly similar stimuli.
As this section has demonstrated, liking for a given stimulus can be enhanced if individuals are previously exposed to any stimulus repeatedly. Several studies have revealed that the effect of repeated stimulus exposure on subsequent liking judgments is due to diffuse positive affect—an unspecified affect with the fascinating property of consistently biasing the subsequent judgment(s) of an individual. Importantly, although previous research dealing with repeated exposure, diffuse positive affect, and the enhanced liking for subsequent stimuli has only investigated effects on liking for simple stimuli (e.g., polygons), it should be possible for exposure experiences to influence judgments about more complex stimuli as well. In the next section, the potential for repeated stimulus exposure to positively influence attitudes toward a persuasive communication will be discussed.

Source Mere Exposure and Persuasion

The general thesis of this dissertation is that repeated exposure to a stimulus will induce diffuse positive affect that, because of its non-specified nature, should readily influence social judgments towards subsequent complex stimuli. In particular, it is currently suggested that the diffuse positive affect should “spill over” and influence individuals’ attitudes toward a persuasive communication much like it influences attitudes (i.e., liking) toward simple stimuli. Furthermore, given the results of Monahan et al. (2000, Study 2), it seems likely that the more similar, or related, the persuasive communication is to the stimulus that is previously and repeatedly exposed to individuals, the greater the likelihood that individuals should, ultimately, form favorable attitudes about the communication.
There are four basic categories of variables associated with a persuasive appeal that can influence the appeal’s effectiveness. These include audience, context, message, and source variables (e.g., Petty & Wegener, 1998). By some means, each of these categories, except for the audience, could be exposed to a message recipient at variable frequencies. In fact, the effect of message repetition has been investigated in prior research. As discussed by Harrison (1977), message repetition has been observed to increase the favorability of individuals’ message attitudes, at least after a period of delay and if the phrasing of the messages is varied slightly each time. Importantly, although this effect is generally consistent with the mere exposure literature, messages are not “clean” stimuli to which one can be merely exposed. Rather, a message can be a stimulus or a set of stimuli consisting of arguments, sentences, words and even punctuation marks. Furthermore, one is not simply exposed to a message. Rather, message reception is active—interpretive and elaborative. After an initial exposure, an individual has to some extent undoubtedly thought about the message, had various affective reactions to it, and formed an overall attitude about it. As a message is encountered a second or third time, diffuse affect may be induced via the exposure, but prior attitudes, thoughts, and feelings likely dilute or overwhelm the effect of this diffuse affect. In fact, Cacioppo and Petty (1989) have found evidence for the “tedium effect” wherein repeated exposure to a message at first has a positive attitudinal effect but with high levels of exposure, negatively affects attitudes (probably due to the greater opportunity for individuals to formulate counterarguments to the message). Therefore, the effects of the frequency of message repetition might not be straightforwardly predicted by the mere exposure/diffuse affect literatures that tend to involve more elementary exposure stimuli.
Unlike message repetition, individuals can more purely be repeatedly exposed to a context or to the source of persuasive communication. However, repeated exposure to a context could be expected to have a fairly weak effect on message attitudes. This suggestion is derived from the results of Monahan et al.’s (2000) Study 2 that indicates that repeated exposure to a stimulus causes more pronounced liking for identical or similar stimuli than for completely novel stimuli. Thus, although it might be expected that more favorable attitudes toward a message may be observed if one reads a message within a context to which they have been repeatedly exposed relative to a novel context, this effect is likely to be small as the context, presumably, is very dissimilar and tangential to the message being read. Conversely, the source of a persuasive communication is related to the communication. Although an individual is clearly a very different type of stimulus than a message, the fact that the individual wrote the message does confer a degree of relatedness between the two stimuli. Therefore, one might expect the effect of repeated source exposure to induce diffuse positive affect that can fairly readily influence individuals’ liking for, or attitude toward, a message.²

² The results of research conducted by Bornstein, Leone, and Galley (1987, Study 3) are consistent with this possibility (see also Weisbuch et al., 2003). These researchers subliminally exposed participants to the face of one of two individuals with whom the participants would interact later in the experiment. After this exposure, the participants met with the two individuals (confederates) and had triadic discussions about the gender of the authors of several poems. Results indicated that participants made the same gender decision as the confederate to whom they had been previously exposed more often than
Because the source of a persuasive communication is a unitized stimulus that is both easily presented and highly related to the communication, this stimulus is probably one of the more likely stimuli that, via its repeated exposure and the resultant diffuse positive affect, can favorably influence individuals’ attitudes toward a persuasive communication. But how might this diffuse positive affect ultimately influence attitudes?

To answer this question, current models of persuasion must be considered.

The two most prominent models of persuasion, the Elaboration Likelihood Model (Petty & Cacioppo, 1981, 1986; Petty & Wegener, 1998) and the Heuristic/Systematic Model (Chaiken, 1980, 1987), suggest that attitude change can occur through both effortful and non-effortful processes. Furthermore, these processes vary in their relative impact on attitude change depending on the motivation and ability of an individual to carefully scrutinize the arguments within a persuasive message (Petty, Wegener, & the unexposed confederate. Thus, it appears that participants were more likely to agree with a previously exposed individual. However, it is important to note that participants made decisions about the likely gender of a poet and that such decisions are rather different than preference evaluations, or attitudes, towards a complex message. That is, the gender decisions are not on a dimension of preference whereas attitudes are inherently preferential. The results of Bornstein et al.’s Study 3 indicate that individuals are more likely to make similar decisions as previously exposed individuals, but do not clearly speak to the possibility that individuals may also form similar attitudes. Thus, the ideas presented within this proposal are consistent with Bornstein et al.’s research, but extend the effects of repeated person-exposure to attitudinal agreement.
Fabrigar, 1997; Petty & Wegener, 1998). When motivation or ability is high, individuals tend to engage in effortful processing wherein cognitive elaboration of message content is extensive and is a predominant influence on attitude change. Under these situations, individuals tend to form more positive attitudes toward an advocated position if the message is composed of strong, as opposed to weak, arguments. When motivation or ability is low, individuals primarily engage in non-effortful processing wherein attitude change is strongly influenced by peripheral cues—that is, cues tangentially associated with the message but irrelevant to the merits of the argumentation within the message. In particular, individuals tend to form more positive attitudes toward a message—regardless of the quality of the arguments within the message, which tend not to be impactful—if the level of the peripheral cue is positive (e.g., source liking) than if it is negative or neutral.

Under low motivation/ability situations, the experienced cue of positive mood tends to have a direct, non-mediated, effect on attitudes such that individuals form more favorable attitudes about a message if they are in a happy, relative to a neutral, mood (Petty, Schumann, Richman, & Strathman, 1993). Importantly, in an analogous fashion, it might be expected that repeated source exposure will induce diffuse positive affect that will directly impact individuals’ attitudes toward the communication under low-motivation situations.

However, one quality of diffuse positive affect is that, due to its non-specified nature, it can fuse with any target being evaluated on a dimension of preference (i.e., good-bad, dislike-like; Harrison, 1977; Monahan et al., 2000). Therefore, diffuse positive affect may enhance a) one’s evaluation of the source of the persuasive communication or
b) even one’s thoughts regarding the merits of the arguments within a persuasive communication. In the former case, individuals who are repeatedly exposed to the message source, compared to those who are not, may come to like the source more (cf., Zajonc, 1968, Study 3). Thus, consistent with the low-motivation conditions investigated by Chaiken (1980) and Petty, Cacioppo, and Schumann (1983), individuals may form more favorable attitudes about a message written by the liked source. That is, the effect of repeated source exposure on message attitudes may be mediated by individuals’ liking for the message source. Finally, in the latter case, individuals who are repeatedly exposed to the message source, compared to those who are not, may generate more favorable message thoughts as a result of diffuse positive affect and, therefore, form more favorable attitudes about the message. That is, the effect of repeated source exposure on message attitudes may be mediated by individuals’ positively biased message thoughts.

It should be noted, however, that attitudes are more likely to be impacted by thoughts when an individual is engaged in effortful processing than non-effortful processing. Nonetheless, thoughts are only relatively less likely to impact attitudes under low-motivation/ability situations (see Petty & Wegener, 1998). Given the apparent ease with which diffuse positive affect can influence preference judgments, it seems probable that even if very few message thoughts are generated by individuals in low-motivation/ability situations, these thoughts have a higher likelihood of being positive if an individual has previously been exposed to the message source. Thus, the possible enhancement in the positivity of message thoughts after repeated source exposures may render thought a more powerful influence than has commonly been observed in these situations.
Consistent with the above discussion, it may be predicted that repeated source exposure will induce diffuse positive affect that can fuse with individuals’ attitude about a persuasive message, liking for the source of the message, thoughts about the message, or some combination. The end result of this fusion, regardless of the target(s), should be a more favorable attitude toward the topic advocated within message than would be observed without repeated source exposure. Additionally, it is noteworthy that diffuse positive affect is likely to influence attitudes regardless of one’s motivation or ability to process a message. However, this influence may be more difficult to detect for individuals who are motivated/able to process a message. These individuals tend to form attitudes based on their thoughts about the merits of message’s arguments. Therefore, factors beyond thought positivity, such as evaluations of the style or novelty of the arguments or increased reliance on issue-relevant knowledge, may make resultant attitudes more variable or multi-determined. In the four reported studies, then, low motivation situations were created so that effects on evaluations of preference (e.g., message attitude, source liking, and positivity of message thoughts), which tend to be affected by repeated exposure, were more likely to be observed.

Finally, the results of Studies 1 through 3 lead to the development of a diffuse-positive-affect-channeling hypothesis. In short this hypothesis—which will be discussed in greater detail after the Discussion of Study 3—suggests that diffuse positive affect can become channeled into whatever category of evaluation an individual considers during or immediately following repeated exposure to the message source. Even more, this hypothesis predicts when an effect of repeated source exposure on attitudes will be direct, nonexistent, or mediated by source liking or message thoughts. Importantly, this idea of
variable mediation for the source mere exposure effect on attitudes is expected to be independent of one’s level of motivation to process a message. Generally, individuals are more heavily influenced by peripheral cues under conditions of low motivation or ability but are more heavily influenced by message thoughts as motivation and ability increases. However, the diffuse-positive-affect-channeling hypothesis predicts that source mere exposure may affect attitudes via very different means at the same level of motivation/ability depending on towards what category of evaluation the diffuse positive affect induced by repeated source exposure might be channeled. The prediction that this variable mediation is independent of motivation/ability is unique within the attitudes and persuasion literature—especially in that it sometimes predicts thought-mediated effects on attitudes even under low-motivation conditions.

Overview of Studies 1 through 3

Studies 1 through 3 investigated contexts in which participants’ motivation to process an essay was likely to be low because the essay issue was not personally relevant to them. This context was created in Study 1 by constructing an essay—containing either strong or weak arguments—that discussed a (fictitious) sprinkler ordinance under consideration in a small Arizona town. This topic was expected to be of very low relevance to Ohio students and, therefore, they were not expected to scrutinize the essay carefully enough to evaluate argument strength. In Studies 2 and 3, a low-relevance context was created by telling participants that the program discussed within the essay they were about to read would not be under consideration in Ohio (Study 2) or Iowa (Study 3) for another ten years.
In Studies 1 through 3, participants either were, or were not, previously exposed to the faces (Studies 1 and 3) or names (Study 2) of the ostensible author of a persuasive communication. The main hypothesis of each study was that only participants previously exposed to the source of a persuasive communication should experience diffuse positive affect and, therefore, come to hold more positive attitudes about the message issue than would those participants not previously exposed to the message source. For these three studies, the possibility that this effect was direct or mediated by thought positivity or source liking was explored, but no specific predictions were made. However, the diffuse-positive-affect-channeling hypothesis advanced to formulate predictions for Study 4 and explain the results of Studies 1 through 3 does make specific mediational predictions (see sections following the Discussion section of Study 3).

Because the diffuse positive affect that is expected to result from repeated source exposure may influence participants’ message thoughts that, furthermore, may impact their attitudes, it was deemed prudent to account for extraneous variability in the thought measure. Therefore, in Studies 1 through 3, the need for cognition scale was integrated (Cacioppo & Petty, 1982). This scale measures individual differences in the extent to which participants enjoy engaging in effortful and analytic thinking. Because individuals vary in this attribute, and because individuals’ need for cognition can influence the extent to which they think about a persuasive communication (e.g., Cacioppo, Petty, & Morris, 1983; for a review see Cacioppo, Petty, Feinstein, & Jarvis, 1996), the need for cognition scale was included for use as a potential covariate.
STUDY 1

In Study 1, participants were presented with one of two pictures of an ostensible journalism student and were asked to rate that person on measures of physical skill. After this, participants read a persuasive essay supposedly written by one of the two journalism students. Thus, approximately half of the participants were exposed to the essay author during the physical-skill-rating task. After reading the essay, participants completed a questionnaire packet containing the main dependent measures.

Method

Participants and Design

In exchange for partial course credit, 79 male and female Ohio University psychology students independently participated in groups ranging from one to eleven individuals. Participants were randomly assigned to one of four conditions in which a facial picture they viewed in the beginning of the experiment either was or was not the same picture of the person who wrote a persuasive essay, which contained either strong or weak arguments. The design of this study was, therefore, a 2 (exposure to the essay author’s face: exposure vs. no exposure) x 2 (argument strength: strong vs. weak) between-subjects design.

Procedure

The experimenter read brief instructions aloud informing participants that the experimental session consisted of two separate experiments for which they would be receiving two different folders. The two experiments were supposedly investigating motor skill perception and essay evaluations, respectively. Participants were told that, in the first folder, they would receive further instructions for the experimental session and a
picture to both view and rate for apparent motor skill (see below). Additionally, participants were told that the second folder contained further brief instructions, a picture of the essay author, an essay, and a questionnaire packet. After these instructions were read, the experimenter handed two folders, labeled “1” and “2,” to each participant.

All participants opened Folder 1 and read the following instructions that led participants to believe that the present experiments were, respectively, investigating whether or not one’s level of motor skill is “written on their face” and determining how individuals evaluate different types of essays:

This experimental session consists of two separate experiments. We are investigating both how individuals perceive others’ skill level and how they evaluate different types of essays. Last year, an instructor in the journalism department granted us access to one of her intro classes. The students in this class wrote a short opinion essay on one of several newspaper articles for an assignment and we were allowed to use these essays. You will be reading the essay of one of these students and be responding to this essay in a questionnaire. Additionally, because we had access to this class, we asked them if we could take their picture. We did this to investigate the possibility that people can perceive the motor skill of another person simply by looking at their face. That is, we want to know if one’s motor skill level is “written on their face” and if so, can other people detect it. To assess motor skill, we had all of the people in this class play a game in which they had to throw balls at moving targets in an attempt to hit as many as they could. Since this is a fairly novel task (and there were no baseball/softball players in the class) we thought that this would be a good way to
assess individuals’ motor skills for tasks they have not practiced. With this game, we have assessed motor skills and we want to determine whether or not you can detect how the students performed in this game simply based on pictures of their faces. You will therefore be shown a random face from this class and be asked to indicate how skilled the person is by answering a few questions. Once you have done this, you will proceed on to the second aspect of this experiment and read one of the essays (written by a student in this class) and respond to it. This will allow us to determine how OU students evaluate different types of essays.

This cover story informed participants that all the materials to be evaluated for this experiment came from the same journalism class. This allows the possibility of obtaining materials either from the same, or a different, student while keeping all other factors constant.

After reading the above instructions, participants continued to the next page in the folder on which a color picture of one of two possible female faces appeared. Following this picture was a short questionnaire, including items designed to maintain the cover story by asking questions about the participant’s perception of the woman’s level of motor skill. At the bottom of this questionnaire, participants were asked to place these materials back into Folder 1 and proceed to the second folder.

Upon opening Folder 2, participants were informed that they would now read an essay written by one of the students in the aforementioned journalism class. Participants were notified that a picture of the essay author appeared on the following page and that they should look at this picture before reading the essay. Additionally, participants were informed that the essay they were about to read discussed a sprinkler ordinance under
consideration in the small town of Vantana, Arizona. Following these instructions, participants looked at the essay author’s picture and read their essay. Participants then completed a questionnaire packet, which included all of the dependent measures for this study. Once this questionnaire was completed, participants were debriefed and dismissed.

**Independent Variables**

*Initial exposure.* After reading the instructions within Folder 1, participants were randomly exposed to a color picture of one of two (non-Ohio University) undergraduate female faces (“A” or “B”). Although participants were told motor skill perception was being investigated in this experiment, approximately half of the participants received within this presentation an initial exposure to the face of the student who also wrote the essay they were soon to read.

*Essay author exposure.* The picture of the essay author, within Folder 2, was one of the two pictures used in the first part of the experiment. Via random assignment, this picture either was, or was not, the same picture that participants had rated for physical skill in the beginning of the experiment. All four possible combinations of picture exposures were counterbalanced.

*Argument strength.* After viewing the essay author’s face, participants read a short essay discussing the merits of an ordinance that would require all residents within the town of Vantana, Arizona to install lawn sprinklers. The contents of this essay were entirely fictional, and this topic was generated because such issues are likely of low relevance to Ohio University undergraduates. All participants read the following identical opening paragraph:
Currently, in the small municipality of Vantana, Arizona, there is an ordinance under consideration that would require all residents with lawns within city limits to install lawn sprinklers. Vantana mayor Robert Forthright spoke with reporters April 11th in an attempt to both educate city residents about the issues behind the sprinkler ordinance and give his endorsement for it. Given the many letters to the editor which followed this interview, it would seem that this issue has touched off a great deal of discussion, thought, and raised eyebrows. It is my opinion that the sprinkler ordinance would be very beneficial for Vantana residents and should be passed into law during the next city council meeting.

After this opening paragraph, the remainder of the essay contained either four strong (e.g., if everyone within city limits has a sprinkler system and waters their lawn regularly, the foliage can become lush enough to retard the spread of brush fires to an extent which the fire department is prepared to handle), or four weak (e.g., it would be more fair to pass a law requiring those with lawns to install sprinklers than to make everyone else live in an ugly and depressing environment), arguments in favor of this ordinance.3

3 The strong and weak versions of this essay were pre-tested to assure that they did in fact differ in the quality of arguments they contained. Participants for this pretest were told that the experiment was investigating how individuals evaluate different types of arguments. The participants were asked to carefully read each argument, rate on 9-point semantic differential scales how foolish/wise, unfavorable/favorable, and harmful/beneficial, each of four weak, or four strong, arguments were evaluated to be. Additionally, for each argument participants were asked to write down any thoughts they
Dependent Variables

*Attitude index.* On 9-point semantic differential scales, higher numbers indicating more favorable attitudes, participants rated the sprinkler ordinance discussed in the essay according to how bad/good, foolish/wise, negative/positive, unfavorable/favorable, and harmful/beneficial they determined it to be. These items were averaged to create an attitude index with a high level of internal consistency ($\alpha = .91$).

had while reading the argument and to designate whether they found that thought to be positive, neutral, or negative. The scales were averaged together across arguments to form an attitude measure. A thought-favorability measure, using the averaged number of positive, the averaged number of neutral, and the averaged number of negative thoughts across arguments, was also computed using the same ratio discussed in Study 1.

The attitude measure and the though-favorability measure were entered into separate t-tests. As expected, participants who read the strong arguments held more positive attitudes about those arguments ($M = 3.69, SD = 1.26$; lower numbers indicating more positive attitudes) than those who read the weak ones ($M = 5.31, SD = 1.23$, $t[30] = 3.67, p = .001$). Additionally, participants who read the strong arguments generated a higher proportion of positive thoughts about the arguments ($M = .255, SD = .439$) than those who read the weak ones ($M = -.430, SD = .465$, $t[30] = 4.28, p = .001$). These results indicate that, using these respective arguments, a strong and weak version of the sprinkler-ordinance essay could be constructed.
Liking measure. An item, rated on a 9-point scale, asking participants, “How much would you say you like the person who wrote the essay?” (1 = not at all to 9 = very much) served as the liking measure.

Thought index. After completing the scales, participants were asked to write down any thoughts, one per line, without worrying about spelling or grammar, which had come to mind while they were reading the essay. After listing their thoughts, participants encountered a page instructing them to go back to their thought listings and indicate whether each thought was positive, neutral, or negative. The thought listings were independently coded for valence by two coders who used the participants’ ratings as a basis for their own ratings.

Two coders also indicated whether the thoughts pertained to the message (and thus were indicative of message elaboration), the message source, or were irrelevant. Coding disagreements were resolved through discussion and inter-rater agreement was 80%. To facilitate the analysis of thoughts pertaining to the message, a thought index was computed for each individual by subtracting the number of negative-message

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4 To determine inter-rater agreement, each of the six categories were assigned the value of one if both coders indicated the exact same number of thoughts fell into a respective category and were assigned the value of zero if both coders indicated that a different number of thoughts fell into a respective category. The value assigned to each of the six categories was summed for each participant and divided by six. By doing this, a rather conservative calculation of inter-rater agreement was obtained.
thoughts from the number of positive-message thoughts and dividing this number by the total number of message-relevant thoughts (see Cacioppo & Petty, 1981).

**Relevance measure.** Participants’ ratings of how relevant the sprinkler ordinance was to them, again made on a 9-point scale (1 = *not at all relevant* to 9 = *very relevant*), served as the personal relevance measure.

**Additional measures.** The questionnaire packet also included scales that were intended to assess how similar and familiar participants found the essay author to be. Ratings were made on scales similar to those previously described. However, none of these measures were significantly influenced by source exposure in Studies 1 through 3 and are, therefore, not discussed further.

**Results**

In the following analyses, the two exposure-variable levels were formed by collapsing across conditions in which participants experienced prior exposure to the essay author (i.e., picture A was seen twice or picture B was seen twice) and by collapsing across conditions in which participants did not experience prior exposure to the essay author (i.e., A/B or B/A), thus creating the exposure and no-exposure levels of this variable. Additionally, because participants’ need for cognition correlated with both the attitude index \((r = -0.204, p < 0.05,\) one-tailed) and the thought index \((r = -0.202, p < 0.05,\) one-tailed), this variable was used as a covariate in the present analyses.

**Personal Relevance**

Participants’ ratings of how relevant they found the sprinkler ordinance discussed in the essay to be were entered into a 2 (exposure) x 2 (argument strength) between-subjects analysis of covariance (ANCOVA) in which need for cognition served as the
covariate. This analysis revealed no significant effects (all $F$s < 1), thus, relevance was, as expected, not influenced by the independent variables. As indicated by a one-sample t-test, the mean rating of relevance was noticeably below the midpoint of the 9-point rating scale ($M = 3.19$, $t[78] = -7.77$, $p < .001$) indicating that, also as expected, participants likely found the essay topic to be of low personal-relevance.

**Attitudes**

The attitude index was entered into a 2 (exposure) x 2 (argument strength) between-subjects ANCOVA in which need for cognition served as the covariate. This analysis revealed only the predicted significant main effect of exposure such that the essay author engendered a more positive attitude toward the essay topic if she was previously seen ($M = 7.04$; $SD = 1.54$) than if she was not seen ($M = 6.63$; $SD = 1.42$; $F[1, 73] = 3.63$, $p < .05$, one-tailed; see Table 1 for means and standard deviations for the attitude, liking, and thought measures). All other $F$s < 1.

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5 One participant failed to fill out an item of the attitude index and was therefore dropped from this analysis. In Studies 1 through 4, participants occasionally failed to answer all the items for the attitude index or failed to report having generated any thoughts while reading the essay. Thus, there is a slight amount of missing data across all four studies. Tables 1 through 4 indicate the number of participants who completed each measure for each condition. Missing data will not be further addressed.
Liking Measure

Participants’ responses to the liking measure were entered into the same ANCOVA used for the above analyses. This analysis revealed no significant effects (all Fs < 1).

Thought Index

The thought index was analyzed using the ANCOVA described above. In this analysis, only a main effect of exposure emerged such that the essay author engendered a higher proportion of positive message-thoughts while participants read the essay topic if she was previously seen (M = .089; SD = .546) than if she was not previously seen (M = -.126; SD = .473; F[1, 74] = 6.36, p < .05). All other Fs < 1.01.

Mediational Analysis

A mediational analysis was conducted to determine whether participants’ attitudes resulting from exposure to the source of the persuasive communication were mediated by their liking for that source, through the proportion of favorable message-thoughts generated while reading the essay, or both. Following the procedure of Kenny, Kashy, and Bolger (1998), both the liking measure and the thought index were independently regressed onto the exposure variable and onto the argument strength variable, while controlling for participants’ need for cognition.

The liking measure was neither significantly influenced by argument strength (β = .020, ns) nor exposure variables (β = .039, ns). However, whereas the thought index was not significantly influenced by argument strength (β = -.080, ns), it was significantly influenced by the exposure variable (β = .306, p < .01). When the attitude index was regressed onto the liking measure, thought index, exposure variable, and argument
strength variable, only liking ($\beta = .255, p < .05$) and the thought index ($\beta = .412, p = .001$) significantly predicted participants’ attitudes about the essay. That is, message-thoughts, but not liking, partially mediated the effect of source mere exposure on attitudes, and there was no residual direct effect of exposure or argument strength on participants’ attitude about the essay ($\beta$’s = .077 and -.058, respectively, $ns$; see Figure 1 for a pictorial representation of this analysis). Furthermore, a Sobel test was conducted to determine if the effect of source exposure on attitudes ($\beta = .225$) was significantly reduced when analyzed simultaneously with the potential mediating variables ($\beta = .077$). This test revealed that the effect was significantly reduced ($Z = 2.23, p < .05$), confirming that message thoughts did partially mediate the effect of source mere exposure on attitudes.

Discussion

It is noteworthy that no effects of argument strength attained significance in the attitude or positivity-of-thought analyses. The lack of a main effect of argument strength for both measures corroborates the results of the issue-relevance measure. That is, because participants did not seem to find the issue discussed within the essay to be personally relevant, they did not scrutinize the message enough to discriminate between strong and weak arguments. Therefore, Study 1 appears to have successfully created a low-motivation situation.

Supporting the main hypothesis, a source mere exposure effect on attitudes was demonstrated in Study 1. Specifically, participants who were previously exposed to the pictorial source of the persuasive communication formed more favorable attitudes about that communication than did those participants for whom the source was novel. In the
Introduction, it was postulated that the diffuse positive affect induced via repeated source exposure could influence message thoughts or source liking. Indeed, the results of Study 1 demonstrate that mere exposure to the source of a persuasive communication can lead to the generation of more favorable message-thoughts while reading the source’s communication. However, source mere exposure did not influence liking for the message source. Overall, these findings are consistent with the notion that repeated source exposure induces diffuse positive affect that, ultimately, is capable if influencing individuals’ attitude towards a subsequently encountered message.

Interestingly, as indicated by the reported mediational analysis, the effect of source mere exposure on message attitudes seems to be indirect and mediated, at least in part, by the favorability of participants’ message-thoughts but not liking for the source. Thus, it appears that even though there tends to be few thoughts generated under low-motivation situations, the diffuse positive affect that results from repeated source exposure can positively sway these thoughts, thus rendering them more influential on the formation of attitudes about the message issue than is commonly observed.

Having demonstrated the source mere exposure effect on both attitudes and the favorability of participants’ message-thoughts as well as a mediational pathway for the former effect, a second study was constructed to answer further specific questions. First, will the source mere exposure effect on attitudes be replicated if different source-exposure stimuli—names instead of faces—are used? Second, will this effect maintain using a different persuasive communication? Finally, and most important, can the source mere exposure effect be moderated by stimuli factors associated with the source? As mentioned in the Introduction, Zajonc (2001) offered a classical-conditioning explanation
for mere exposure effects. Basically, stimuli are generally exposed to individuals within a benign context and, therefore, become associated with approach tendencies or diffuse positive affect. However, following up this logic, it should be possible to eliminate or reverse exposure effects if a negative-affect inducing (i.e., punishing) stimulus immediately follows the initial presentation of the exposure stimulus. This notion is supported by research conducted by Burgess and Sales (1971) in which exposure effects were actually reversed for conditions in which the exposure stimulus (a nonsense word) was paired with a negative word. Additionally, Perlman and Oskamp (1971) obtained exposure effects for conditions in which it was possible to make positive or neutral attributions about an exposed person, but not when negative attributions were more likely.

Following the Burgess and Sales (1971) and Perlman and Oskamp (1971) studies in principle, the source of a persuasive message was paired with either a neutral or negative stimulus (an experience description) in Study 2 in order to test the possibility that source exposure effects on message attitudes can be moderated. It was anticipated that presenting participants with a neutral stimulus after the initial exposure to the message source should at least approximate the benign situations generally experienced within exposure experiments and, therefore, should induce diffuse positive affect and produce an effect of source mere exposure on attitudes. However, it was anticipated that presenting participants with a negative stimulus after the initial exposure to the message source should associate the source with negative, malignant, situations, thus precluding the formation of diffuse positive affect and an effect of source exposure on attitudes.
STUDY 2

In Study 2, participants were asked to read either a pre-tested neutral or negative experience description supposedly written by a journalism student. The author of this description was said to be one of two students, “Jason” or “Phil.” After reading the description, participants completed a brief questionnaire and then read a persuasive essay supposedly written by either Jason or Phil. Thus, approximately half of the participants were exposed to the essay author via the experience description. After reading this essay, participants completed a questionnaire packet containing the main dependent measures for liking, thoughts, and attitude.

Method

Participants and Design

In exchange for partial course credit, 81 male and female Ohio University psychology students independently participated in groups ranging from one to 21 individuals. Participants were randomly assigned to one of four conditions in which they read a neutral or negative experience description written by a person who either would, or would not, be the author of a persuasive essay later in the experiment. The design of this study was, therefore, a 2 (experience description valence: neutral vs. negative) x 2 (exposure to essay author: exposure vs. no exposure) between-subjects design.

Procedure

The procedure for this experiment was similar to that for Study 1. The Folder 1 instructions and cover story were modified to accommodate the use of experience descriptions:
In this experimental session we are investigating both OU students’ experiences and how they evaluate different university issues. Last year, an instructor in the journalism department granted us access to one of her classes. The students in this class wrote an essay on one of several university issues for an assignment and we were allowed to use these essays. You will be reading the essay of one of these students and be responding to this essay in a questionnaire. Because we had access to this class, we also asked them to briefly describe an OU student’s experience that is in their recent memory. You will first read a description of someone else’s experience written by a person in this class. You will then be asked to indicate how common this experience is among OU students. By asking people in this class to describe someone else’s experience description that came to mind and then asking you to indicate how common this experience is, we hope to ascertain people’s perception of the average OU student. Once you have done this, you will then read one of the essays and respond to it. This will allow us to determine OU students’ opinions on various university issues.

After reading the above instructions, participants continued to the next page in the folder, which included the name of the author of an experience description, a brief experience description, and questions intended to maintain the cover story and serve as manipulation checks. After reading all the information on this sheet and answering the questions, participants read instructions asking them to return materials to Folder 1, close it, and open Folder 2. In this folder, participants were provided a sheet containing information about the essay they were about to read (including the author of the essay), the essay, and a questionnaire packet.
Independent Variables

*Experience descriptions.* Participants were randomly assigned to read one of two experience descriptions in which the description author (i.e., either Jason or Phil) reported another student’s experience, which he presumably had overheard in a class. The author described the student’s vacation that was neutral (a business trip to Kansas City) or negative (a cold trip to Canada to visit unpleasant family members). Although the author had not personally engaged in the described experiences, this manipulation was intended to indirectly associate the author with these experiences as well as with their related affective valences. Because these valence associations had been pre-tested, it was expected that they would effectively differentiate the initial affective evaluation of the source.

*Initial exposure.* Through random assignment, participants received one of two versions of the experience descriptions supposedly authored either by “Jason Spees” or “Phil Atkinson.” Therefore, with two possible valences associated with each of these two authors, there were four versions of the initial experience description.

*Essay author exposure.* Participants were randomly assigned to read a persuasive essay supposedly written either by Jason Spees or Phil Atkinson. Via random assignment, this name either was or was not the same name of the experience-description author. That is, for approximately half the participants, the presentation of the essay author’s name served as a second exposure to a particular author whereas, for the other half, the essay author’s name was novel. All four possible combinations of name exposures (i.e., Jason/Jason, Phil/Phil, Jason/Phil, and Phil/Jason) were counterbalanced.
Essay

Within an instruction page, participants were informed that the essay they were about to read discussed a “writing across the curriculum” program (W.A.C.; adapted by Wolfe, 1993) under consideration at Ohio University for use after the year 2010. Given that this study was conducted during the 1999-2000 academic year, such information was intended to create a low issue-relevance situation for all participants (cf. Aspler & Sears, 1968; Petty, Cacioppo, & Goldman, 1981). At the bottom of the instructions, participants were asked to read the essay that contained weak arguments for all participants. Only weak arguments were used since the argument strength variable yielded no effects in Study 1.

Dependent Variables

Within a brief questionnaire contained in Folder 1, participants responded to two 9-point semantic differential scale items that asked participants to rate how negative/positive and unpleasant/pleasant they found the experience description to be. These two highly correlated items (r = .91, p < .001) were averaged and used as the manipulation check of experience-description valance. The questionnaire in Folder 2 contained identical dependent measures as those used in Study 1, although the phrasing of the questions differed slightly to accommodate the assessment of the W.A.C. essay issue. For the thought index, the inter-rater agreement was 95.6%.

Results

In the following analyses, the exposure variable was formed by collapsing across conditions in which participants experienced prior exposure to the essay author (i.e., Jason/Jason or Phil/Phil) and by collapsing across conditions in which participants did
not experience prior exposure to the essay author (i.e., Jason/Phil or Phil/Jason) to create the exposure and no-exposure levels of this variable. Additionally, because participants’ need for cognition did not correlate with the attitude index (\( r = .019 \)) or the thought index (\( r = .028 \)), this variable was not used as a covariate in the present analyses.

**Personal Relevance and Manipulation Check**

Participants’ ratings of how personally relevant they found the W.A.C. essay to be were entered into a 2 (experience description) x 2 (exposure) between-subjects ANOVA. This analysis revealed no significant effects (all \( ps > .05 \)). The grand mean rating of relevance was near the midpoint of the 9-point rating scale (\( M = 5.79 \)) indicating that, overall, participants may have found the W.A.C. program somewhat personally relevant.

Participants’ responses to the experience-description manipulation check were entered into an ANOVA identical to that above. This analysis yielded only the predicted main effect of experience description, \( F (1, 77) = 396.25, p < .001 \), such that participants who read the negative experience description found the description more negative (\( M = 2.49 \)) than did participants who read the neutral experience description (\( M = 6.95 \)). Thus, the manipulation of experience description valence was successful.

**Attitudes**

The attitude index (\( \alpha = .88 \)) was entered into an ANOVA identical to those above. This analysis revealed a significant main effect of experience description such that participants had more favorable attitudes about the W.A.C. program if they had read neutral experience descriptions (\( M = 6.52 \)) than if they had read a negative experience description (\( M = 5.58; F [1, 77] = 3.91, p < .05 \); see Table 2 for means and standard deviations for the attitude, liking measures, and thought index). The main effect of
exposure—which was expected to be attenuated by the predicted Experience Description x Exposure interaction—was not significant.

Importantly, there was a predicted and significant unfocused Experience Description x Exposure interaction, $F(1, 77) = 3.28, p = .037$, one-tailed. To further explore this interaction, a planned comparison was constructed in which participants in the exposure/neutral experience-description condition—the condition in which an exposure effect on attitudes was expected—were compared to all other conditions combined. As expected, this comparison was significant, $F(1, 77) = 6.65, p = .012$.

Additionally, to test the possibility that encountering a negative experience description may attenuate the source exposure effect, a paired comparison was conducted comparing the exposure condition to the no-exposure condition for participants who read the negative-experience description. This comparison was not significant, $t(77) < 1$, indicating that the negative experience association did attenuate the normally observed source mere exposure effect. A second comparison contrasted the exposure condition to the no-exposure condition for participants who read the neutral-experience description. This comparison was significant, $t(77) = 1.69, p < .05$, one-tailed, demonstrating that, for participants who read the neutral-experience description, more favorable attitudes were formed about the essay topic if it was written by someone to whom they had, rather than had not had, prior exposure to as author of the experience description.
**Liking Measure**

The liking measure was entered into the same ANOVA used above. This analysis revealed only a marginally significant main effect of experience description with $F(1, 77) = 3.87, p = .053$ (see Table 2). All other $Fs < 1$.

**Thought Index**

The thought index was entered into an ANOVA identical to those used above. This analysis revealed a significant main effect of exposure such that the essay author engendered a higher proportion of positive message-thoughts while participants read the essay topic if he had also been the author of the prior experience description ($M = -.224; SD = .609$) than if he was not ($M = -.479, SD = .435; F [1, 76] = 4.66, p < .05$). This analysis revealed no other significant effects, all $ps > .097$.

**Mediational Analysis**

A mediational analysis, similar to the one employed in Study 1, was conducted for Study 2. In this analysis—which, unlike Study 1, did not control for participants’ need for cognition—the liking measure and the thought index were tested as mediators of the effect of source exposure on message attitudes. Two separate mediational analyses were conducted for the two experience-description conditions as no effect of exposure on attitudes was predicted or obtained for the negative experience-description conditions.

First, for the neutral-experience description conditions, the liking measure and the thought index were independently regressed onto the exposure variable. The liking measure was not significantly influenced by the exposure variable ($\beta = -.124, ns$) whereas the thought index was ($\beta = .357, p < .05$). Second, when the attitude index was regressed onto the liking measure, thought index, and exposure variable, the thought index was
significantly related to the attitude index ($\beta = .538, p < .01$) whereas liking was not ($\beta = .235, p > .05$). Furthermore, there was no residual direct effect of exposure on participants’ attitude about the essay ($\beta = .097, ns$; see Figure 2.1 for a pictorial representation of this analysis). Additionally, as was done for Study 1, a Sobel test was conducted to determine if the effect of source exposure on attitudes ($\beta = .288$) was significantly reduced when analyzed simultaneously with the potential mediating variables ($\beta = .097$). Consistent with Study 1, this test revealed that the effect was significantly reduced, confirming that message thoughts did partially mediate the effect of source mere exposure on attitudes ($Z = 1.88, p = .03$, one-tailed).

The same mediational analysis was conducted for the negative experience-description conditions. In the first step of the analysis, neither the liking measure ($\beta = .015, ns$) nor the thought index ($\beta = .129, ns$) was significantly influenced by the exposure variable. When the attitude index was regressed onto the liking measure, thought index, and exposure variable, liking was significantly related ($\beta = .414, p < .01$), whereas the thought index was, at best, marginally related to the attitude index ($\beta = .239, p = .095$). Furthermore, there was no direct effect of exposure on participants’ attitude about the essay ($\beta = -.160, ns$; see Figure 2.2 for a pictorial representation of this analysis).

**Discussion**

In Study 2, the predicted interaction between source exposure and the valence of stimuli associated to the source was significant. Specifically, participants who read a neutral experience description immediately after their initial exposure to an individual’s
name formed more favorable attitudes about the following persuasive message if it was written by that same individual than if it was not. However, if participants read a negative-experience description immediately after their initial exposure to an individual’s name, this tendency to form more positive attitudes about an issue advocated by a previously exposed source disappears. Thus, the results of Study 2 seem to indicate that mere exposure to a message source tends to result in more favorable attitudes about the message, unless the initial source exposure is immediately paired with negative information. This finding lends credence to Zajonc’s (2001) recently proposed classical-conditioning explanation for exposure effects.

Interestingly, there was a significant main effect of experience description for the attitude index. However, this effect must be considered within the context of the significant Experience Description X Exposure interaction discussed above. It seems likely that this effect is driven by the notably more favorable attitudes of participants who both read the neutral experience description—as compared to those participants who read the negative experience descriptions—and had prior exposure to the essay author (see Table 2).

One apparent oddity found in Study 2 is that the level of motivation participants experienced while producing the predicted interaction seems ambiguous. The experiment was designed to create a situation of low issue-relevance by telling participants that the proposed program was not to be considered for another decade. This has been used as a successful manipulation of low personal-relevance in many studies (e.g., Petty, Cacioppo, & Goldman, 1981), and although the mean for the relevance measure fell close to the
midpoint of the scale in the present study, this mean may simply reflect participants’ 
acknowledgement that the proposed changes may affect their alma mater.

As in Study 1, the results of Study 2 provide support that mere exposure to the 
source of a persuasive communication leads to the generation of more favorable message-
thoughts while reading the source’s communication. The lack of a significant interaction 
for this measure indicates that participants in both experience-description conditions 
evinced this effect to some extent. Mediational analyses conducted for each experience-
description condition separately, however, revealed that the effect of source mere 
exposure on attitudes seem to be indirect and mediated, at least in part, by the favorability 
of participants’ message-thoughts only in the neutral experience-description conditions. 
That is, as seen in the mediational analyses, the exposure variable only influenced 
thoughts in the neutral experience-description conditions. Thus, prior source exposure 
clearly had a more pronounced effect on thought positivity in the neutral, relative to 
negative, experience-description conditions. Finally, the mediational analysis for the 
neutral experience-description conditions replicates the findings of Study 1 in which 
source exposure effects on attitudes seem to be partially mediated by the favorability of 
message-thoughts generated while participants read the persuasive message.

Notably, there are at least two important criticisms that could be waged against 
Studies 1 and 2. First, participants were not merely exposed to the message source. 
Rather, in both studies, participants learned that the exposed author was a journalism 
student at Ohio University who wrote an essay for a journalism class. Additionally, 
participants learned in Study 1 that this student engaged in a ball-throwing task and, in 
Study 2, that this student overheard a conversation about a classmate’s vacation. Thus,
participants’ in the exposure conditions of these studies were given some, albeit minor, information about the source of the essay. Although this information was provided as part of the cover stories for Studies 1 and 2, this additional information may have had the unintended effect of individuating the source and, thus, disposed individuals to be less critical, more accepting, and more tolerant of the source’s message. As a result, the apparent effect of source exposure on attitudes may simply be an artifact of the additional information provided about the source rather than an effect of repeated source exposure per se.

Second, unlike traditional mere exposure studies, participants in Studies 1 and 2 were asked during the source-exposure phase to respond evaluatively to seemingly inconsequential and message-tangential items. Specifically, within the exposure conditions, participants in Study 1 were asked to rate the source’s level of physical skill and participants in Study 2 were asked to rate the positivity of an experience description authored by the message source. One possible effect of these ratings, besides maintaining the cover stories as intended, is that participants may have experienced consistency motives that ultimately influenced their attitudes. Specifically, given participants in Study 1 rated the source’s physical skill in the exposure conditions, these participants may have sought to remain evaluatively consistent in their message thoughts and attitudes and therefore, were less likely to generate negative thoughts or more unfavorable attitudes about the message relative to participants in the no-exposure conditions (who, presumably, should not experience consistency motivations). Additionally, if participants rated the experience description somewhat favorably in Study 2—which was the case in the neutral, relative to the negative, experience-description conditions—participants in
the exposure condition may have attempted to maintain consistency in their evaluations of the source’s message, both in regards to their thoughts and attitudes about the message relative to participants in the no-exposure condition. Thus, source exposure may not have induced diffuse positive affect that influenced participants’ thoughts and attitudes about the source’s message. Rather, responding to scale items during the source-exposure phase of the experiments may have motivated participants to remain consistent in their evaluations of items related to the message source.

These two criticisms of Studies 1 and 2 were dealt with methodologically in Study 3. Specifically, participants in Study 3 were not provided any individuating information about the message source before or during the exposure phase of the experiment. In fact, in one third of the conditions, participants were subliminally exposed to the message source and, therefore, were not even aware that they had been exposed to this individual. Therefore, Study 3 created conditions in which the source of the persuasive communication was, truly, merely exposed. Additionally, participants were not asked to respond evaluatively on a dimension of preference (e.g., on a good-bad or like-dislike dimension) during the source-exposure phase of this experiment. During this phase participants were asked to indicate, as part of a cover story, whether a letter string was a word or non-word, but this form of evaluation is neither on dimension of preference nor is it in any way associated with the message or the message source. Thus, the influence of consistency motives would be an untenable explanation for any observed effects of source exposure on any of the main dependent measures.
STUDY 3

In Study 3, participants were informed that they would partake in two separate experiments. The first experiment supposedly tested how quickly individuals could indicate whether 10 separate letter strings were words or non-words. During this task, approximately two-thirds of the participants were subliminally exposed to one of two male faces five times. For half of the participants in the subliminal conditions, the male face was the same face as the person later said to have written an upcoming essay. For the other half of the participants in the subliminal conditions, the male face was a different face than the person later said to have written an upcoming essay. Another one-third of the participants consciously saw a male face five times for 250 ms between trials. In the conscious exposure condition, the male face seen during the trials was the same face as the person later said to have written an upcoming essay. Thus, there were three conditions, one in which participants were exposed to the face of the essay author subliminally, one consciously, and one in which participants were subliminally exposed to a person who did not author the essay. For the second experiment, participants were shown for 2000 ms one of the two male faces as being the essay author then read the essay of low personal-relevance that contained either strong or weak arguments. Participants then completed a questionnaire containing all the main dependent measures.

Method

Participants and Design

In exchange for partial course credit, 79 male and female Ohio University psychology students independently participated in groups ranging from one to two individuals. Participants were randomly assigned to one of three exposure conditions and
read a persuasive essay containing strong or weak arguments. The design of this study was, therefore, a 3 (source exposure: supraliminal vs. subliminal vs. no-exposure) x 2 (argument strength: strong vs. weak) between-subjects design.

Procedure

Participants were seated in front of a computer and informed that they would partake in two separate experiments. The first experiment, they were told, tested how quickly individuals could indicate whether 10 separate letter strings were words or non-words. The second experiment, participants learned, was investigating individuals’ opinions about various university-related issues. Therefore, they were told that they would read an essay and respond to questions about this essay. At this point the experimenter told participants that further instructions and the experiment would be conducted on the computer, and that they should then begin the experiment. The experiment was created and run using MediaLab and DirectRT software (Jarvis, 2000).

Participants first completed the “word-recognition” task at which point they were repeatedly exposed to faces. Participants were told that we were interested in determining how quickly individuals could indicate whether 10 separate letter strings were words or non-words. Therefore, they would be presented ten trials in which they would be asked to press, as quickly as possible, the right “Shift” key when a letter string was a word and the left “Shift” key when a letter string was not a word (this data was not actually recorded). Participants further learned that in each trial, they would quickly be shown a shown a square (supposedly to indicate the string would be appearing), a letter string, and then a blank response screen. The square and the neutral letter string (e.g., MAF, GUB, SAW, LIP) were presented for 250 ms each and were followed by a blank white screen for 1000
ms. Before participants actually engaged in the trials, an example trial was presented to the participants so that they would know what to expect. Participants were then presented the 10 test trials. After this, participants were shown the face of a college-aged male and told that this individual authored the essay they were about to read. Participants then read an essay and responded to questions about that essay.

**Independent Variables**

*Initial exposure.* For approximately 2/3 of the participants, one of two male (male A or Male B), and one of two female (Female A or Female B), faces were subliminally presented for 20ms before the square mask for 5 of the word-recognition trials, respectively. There were therefore four possible combinations of the subliminally presented faces (Male A and Female A; Male A and Female B; Male B and Female A; Male B and Female B). Across the 10 trials, the faces were presented in an unsystematic fashion (male, female, male, male, female, male, female, male, male, female). For half of these participants the male face shown was the essay author.

Another 1/3 of the participants saw a face for 250 ms between trials supposedly to indicate that a new trial would follow. These participants were told that facial pictures would appear between trials to indicate that one trial has ended and another would begin. For five trials, one of two male faces (who *always* was the essay author) was shown and for five trials one of two female faces was shown. Like the subliminal conditions, there were four possible combinations of faces presented, and these were counterbalanced. Unlike the subliminal conditions, however, for all of these participants the male face shown was the essay author.
The female faces were incorporated into this phase of the experiment to test for the possibility that participants may be able to recognize the faces that were intended to be subliminal. All participants consciously saw the male source of the persuasive message before they read the message. Thus, it is not possible to use participant’s recognition of the male faces to test whether they could detect the subliminal male faces; they consciously saw a male face before they read the essay. Therefore, one of two female faces was also presented during the exposure phase so that recognition for subliminally presented faces could be accurately tested.

*Essay author exposure.* Participants were randomly assigned to read a persuasive essay supposedly written either by Male A or Male B. Via random assignment, participants were shown a male face as being the essay author that either was or was not the same male face presented to them during the word-recognition task. That is, for approximately half the participants, the presentation of the essay author’s face served as the sixth exposure to a particular author whereas, for the other half, the essay author’s face was novel. All four possible combinations of face exposures for the word-recognition task and the essay author (i.e., Male A/Male A, Male A/Male B, Male B/Male A, and Male B/Male B) were counterbalanced.

*Argument strength.* Just before seeing the essay author’s picture, participants were informed that the essay they were about to read discussed a “writing across the curriculum” program under consideration at Iowa University (subliminal conditions) or the University of Sydney (Australia; for the supraliminal conditions) for use after the year 2012. Given that this study was conducted during the 2001-2002 academic year, such information was intended to create a low issue-relevance situation for all participants.
Two universities were used instead of one due to a probable programming error in which modifications were not saved.

After being provided initial information about the essay and being shown the essay author’s picture, participants read an essay containing either strong or weak arguments in favor of the W.A.C. program. Because subliminal source exposure had not yet been investigated, both versions of the essay were used for exploratory purposes.

**Dependent Variables**

The same dependent measures used in Study 2 were completed by participants on a computer. However, several new items were added to further investigate the possibility that source liking and participants’ mood may be affected under the situation created in Study 3.

To further explore the potential role of source liking for the source mere exposure effect on attitudes, Study 3 incorporated a forced-choice dichotomous liking measure as was done by Kunst-Wilson and Zajonc (1980). Such a measure affords participants less of an opportunity to “ride the liking fence” and, therefore, should be more sensitive to slight differences in source liking. Specifically, participants were asked to indicate which of the two possible male faces, and which of the two possible female faces, they liked better. Additionally, a scale item (“How much would you like to meet the person who wrote the essay you read,” 1 = not at all to 9 = very much) was created to tap source liking somewhat more covertly than the previously used liking measure. Finally, to determine whether or not participants were able to consciously recognize the faces to which they were subliminally exposed, Study 3 incorporated a forced-choice dichotomous recognition measure for both the male and female faces.
Results

In the following analyses, the exposure variable was formed by collapsing across subliminal conditions in which participants experienced prior exposure to the essay author (i.e., Male A/Male A or Male B/Male B) and by collapsing across conditions in which participants did not experience prior exposure to the essay author (i.e., Male A/Male B or Male B/Male A) to create the subliminal-exposure and no-exposure levels of this variable. All participants in the supraliminal exposure conditions saw the face of the essay author and, thus, were classified as the third level of the exposure variable.

Finally, because participants’ need for cognition did not correlate with the attitude index ($r = .135, p = .24$) or the thought index ($r = .126, p = .29$), this variable was not used as a covariate in the present analyses.

Personal Relevance

Participants’ ratings of how personally relevant they found the W.A.C. essay to be was entered into a 3 (source exposure: supraliminal vs. subliminal vs. no-exposure) x 2 (argument strength: strong vs. weak) between-subjects ANOVA. This analysis revealed a marginally significant main effect of argument strength such that participants who read the essay containing strong arguments found the essay more personally relevant than those who read the essay containing weak arguments, $F (1, 73) = 3.60, p = .06$. There were no other significant effects (all $ps > .58$). The mean rating of relevance was near the midpoint of the 9-point rating scale (grand $M = 5.68$) indicating that participants may have found the W.A.C. program somewhat personally relevant. It is important to note that the lack of an exposure main effect indicates that participants did not find the W.A.C.
program more relevant when it was said to pertain to Iowa University (subliminal conditions) or the University of Sydney (supraliminal conditions).

**Attitudes**

The attitude index (α = .93) was entered into an ANOVA identical to that above. This analysis revealed a significant main effect of argument strength such that participants formed more favorable attitudes about the message containing strong \( (M = 7.19, SD = 1.46) \), compared to weak \( (M = 5.88, SD = 1.82) \), arguments, \( F(1, 73) = 11.88, p < .01 \); see Table 3 for means and standard deviations for the attitude index, liking measure, and thought index). More important, the ANOVA also revealed a significant main effect of exposure, \( F(1, 73) = 3.21, p < .05 \). Two paired comparisons revealed that, relative to participants in the no-exposure condition \( (M = 5.84, SD = 2.00) \), participants exposed to the message source formed more favorable essay attitudes in both subliminal \( (M = 6.70, SD = 1.72; F[1, 73] = 2.89, p < .05, \text{ one-tailed}) \) and supraliminal \( (M = 6.96, SD = 1.45; F[1, 73] = 6.11, p < .05) \) conditions. Participants in the supraliminal and subliminal source exposure conditions formed comparable essay attitudes, \( F < 1 \).

Additionally, to test the overall prediction that repeated exposure to the message source, relative to no source exposure, would lead to the formation of more favorable message attitudes, a planned comparison was conducted in which the no-exposure conditions were compared to the combined exposure conditions. This comparison was significant, \( F(1, 73) = 5.79, p = .019 \). Finally, the Exposure x Argument Strength interaction was not significant, \( F < 1 \).

**Liking and Recognition Measures**

The liking measure was entered into the same ANOVA used above. This analysis
revealed only a marginally significant main effect of argument strength, $F(1, 73) = 3.35, p = .07$. All other $F$s < 1. The like-to-meet measure—which was significantly correlated with the liking measure, $r = .325, p < .01$—was entered into the same ANOVA. This analysis revealed no significant effects, all $p$s > .1. Additionally, no significant effects were obtained when these two measures were combined and entered into this ANOVA, all $p$s > .22.

In addition to these measures, participants were asked to indicate which of two male faces, and which of two female faces they liked better. If they chose a face to which they had been exposed earlier in the experiment, the response was coded one. Otherwise, the response was coded zero. This forced choice liking measure revealed no significant effects for the male faces ($\chi^2[2, N = 79] = .066, ns$). Interestingly, however, this forced choice liking measure did reveal a marginally significant effect for the female faces, $\chi^2[2, N = 79] = 5.50, p = .064$. This analysis indicates that more participants in the supraliminal conditions liked the female face they had earlier seen ($n = 19$) than the face they had not seen ($n = 6$). In the subliminal-exposure conditions, 13 of the 24 participants (54%) indicated more liking for the exposed female face and, in the no-exposure conditions, 12 of the 27 participants (44%) indicated more liking for the exposed female face.

Identical forced-choice measures were used to determine participants’ recognition of the faces they had seen. This analysis was performed for the male faces, but this only indicated that participants recognized seeing the essay author’s face before they read the essay; there were only three errors made. More important is the finding that participants were clearly more likely to recognize the female faces they had seen in the supraliminal
exposure (92%) than they were in the no source-exposure (66.7%) and subliminal source-exposure conditions (50%; \(\chi^2[2, N = 79] = 10.42, p < .01\)). The finding for the no source-exposure condition is rather curious given the participants were exposed to the female faces for 20 ms, and raises the possibility that participants may have been aware of the faces that were intended to be subliminal. A second chi-square analysis was conducted looking only at the no source-exposure and subliminal source-exposure conditions to test the possibility that participants recognized the subliminally exposed female face more so in the former condition that in the latter. This analysis was not significant, \(\chi^2[1, N = 51] = 1.46, ns\). Thus, it seems reasonable to conclude that the subliminal exposures were not consciously experienced.

**Thought Index**

The thought index was entered into an ANOVA identical to those used above (inter-rater agreement for codings was 77%). Unlike Studies 1 and 2, this analysis did not reveal a significant main effect of exposure, \(F < 1\). There was a significant main effect of argument strength such that participants generated a higher proportion of favorable thoughts about the message containing strong arguments (\(M = .370, SD = .609\)) than the message containing weak (\(M = -.275, SD = .511\)) arguments \(F(1, 67) = 26.73, p < .001\). Interestingly, this analysis also revealed a marginally significant Exposure by Argument strength interaction \(F(2, 67) = 2.97, p = .06\). Judging from the means, it appears that participants in both exposure conditions generated a higher proportion of favorable thoughts about the message containing strong arguments than the message containing weak arguments to a greater extent than did participants in the no-exposure condition.
A mediational analysis similar to the one employed in Study 1 was conducted. In this analysis, the liking measure and the message-thought index were tested as mediators of the effect of source exposure on message-attitudes, although no mediating effect of the thought index was expected since exposure did not affect this measure. First, the liking measure and the thought index were independently regressed onto the argument strength variable and the exposure variable—for which the two exposure conditions were combined in one level and the no-exposure condition was the second level. The liking measure was not significantly influenced by the exposure variable ($\beta = .123, ns$) but was marginally influenced by the argument strength variable ($\beta = .211, p = .063$). The thought index was not significantly influenced by the exposure variable ($\beta = .130, ns$) but was influenced by the argument strength variable ($\beta = .504, p < .001$). When the attitude index was regressed onto the liking measure, thought index, exposure variable, and argument strength variable, the exposure variable ($\beta = .206, p = .053$), the thought index ($\beta = .271, p < .05$), but not the liking variable ($\beta = .168, p = .12$), significantly predicted participants’ attitudes about the essay. However, there was no residual direct effect of argument strength on participants’ attitude about the essay ($\beta = .188, p = .13$; see Figure 3 for a pictorial representation of this analysis). Thus, unlike the findings of Studies 1 and 2, this analysis revealed that the effect of source exposure on attitudes was direct and non-mediated (although this was not the case for the argument strength variable).

**Discussion**

As predicted, the results of Study 3 indicate that participants formed more favorable attitudes about a persuasive message if they were exposed, subliminally or
supraliminaly, to the source of that message than if they were not. Thus, for a third time, the anticipated source mere exposure effect on attitudes was demonstrated. Importantly, this effect maintained in the absence of individuating information about the source and without having had participants respond evaluatively on a dimension of preference related to the message source during the exposure phase of the experiment. Thus, the observed effect on attitudes is most plausibly explained as having resulted from mere repeated source exposure. In fact, given this effect was observed in Study 3, it may be argued that repeated source exposure is the most parsimonious explanation for the attitude effects observed in Studies 1 through 3.

Importantly, the results of Study 3 may be used to suggest that the diffuse positive affect that results from repeated source exposure, as opposed to repeated exposure to message-irrelevant stimuli, more markedly influences message attitudes. In Study 3, all participants were exposed to two individuals five times each—however, it was only in the source-exposure conditions that one of these faces was the author of the essay participants read. Thus, even participants in the no-exposure conditions were repeatedly exposed to a face. However, as the results of Study 3 demonstrate, repeated exposure to the message source, relative to repeated exposures to an irrelevant face, caused participants to form more favorable attitudes about the message in the essay. Thus, consistent with Monahan et al.’s (2000) Study 2, liking (or message attitudes in the case of the current study) is more pronounced if the rated stimuli are the same as, or similar to the previously exposed stimuli (e.g., the message when written by an exposed person) than if the rated stimuli is quite novel (e.g., the message when written by a novel person).
That is, source exposure per se most powerfully impacts individuals’ attitudes about a message written by that source.

It is noteworthy that, unlike Study 1, there was an effect of argument strength in the attitude and positivity-of-thought analyses. This main effect of argument strength for both measures in addition to the moderate ratings found for the relevance measure, suggest that participants experienced some motivation to carefully process the essay. It was intended that participants would not experience much motivation to process the message since they were told that the W.A.C. program discussed within the essay might influence future students at a distant university. This situation was created because, as it was reasoned in the Introduction, source mere exposure effects on attitudes might be easiest to observe under low-motivation situations because factors aside from thought positivity, such as the assessments of argument style or novelty, may play less of a diluting role. Nevertheless, results consistent with the main hypothesis were currently obtained under a situation in which it appears that participants were somewhat motivated to process the message (see also Weisbuch et al., 2003).

Consistent with the previous two studies, no effects of source liking were observed in Study 3. This held true even for the additional liking measures investigated. However, unlike the previous two studies, no main effect of source exposure on the favorability of participants’ message-thoughts was observed. Furthermore, in Study 3, unlike Studies 1 and 2, the effect of source exposure on attitudes was direct and was not mediated, even by the favorability of participants’ message-thoughts. Thus, although participants’ attitudes were favorably influenced by repeated exposure to the source of the persuasive communication in Study 3, the mechanism by which this effect occurred
was clearly different than the thought-mediated mechanism observed in both Studies 1 and 2.

The Differences between Studies 1-2 and 3: A Hint at Variable Mediation

One main difference between Study 3 and both Studies 1 and 2 is that, as mentioned earlier, participants in Studies 1 and 2 responded evaluatively on measures of preference related to the message source during the initial exposure to that source. Specifically, participants rated the source on her level of physical skill (e.g., How physically skilled does the pictured person appear? How good do you think this person is at darts?; Study 1) or rated the positivity of a vacation described by the source (Study 2). Although these items appear unrelated, one common thread between them is that they both ask participants to rate the possible or actual output of the source. That is, both types of questions ask participants to evaluate what the source can do (Study 1) or what the source had done (Study 2). One possible, and inadvertent, effect of such questions is that participants were primed to think evaluatively about what the source can do or has done. Once this mind frame had been activated, the second exposure to the message source induced diffuse positive affect that, although unspecified, was channeled toward evaluations of the source’s output (e.g., the essay). Thus, participants in Studies 1 and 2 may have been subtly prompted to think about things the source does/did—like having written an upcoming essay—and these thoughts were positively influenced by the diffuse positive affect induced by the second source exposure. Therefore, the higher proportion of positive message-thoughts observed for the source-exposure conditions in Studies 1 and 2—that ultimately influenced participants’ message attitudes—may have resulted from the particular priming effects of the questions asked during the initial exposure
phase of the experiments. Supporting this idea is the fact that thoughts were unaffected by source exposure in Study 3 when no questions whatsoever were asked during the exposure phase of the experiment. That is, when participants were not inadvertently prompted to think about what the source can do or has done, the diffuse positive affect induced by repeated source exposure did not influence message thought but, instead, had a direct effect on attitudes.

The above analysis led to the development of the central thesis of Study 4 wherein the diffuse positive affect induced by repeated source exposure, although unspecified, can become channeled toward a particular category of evaluation. So, for example, if one is repeatedly exposed to the source of a persuasive message—and, therefore, experiences diffuse positive affect—and is prompted to evaluate the outputs of the source, the diffuse affect should be channeled, in general, toward evaluations of the source’s output (e.g., the essay) and result in positively biased message-thoughts which will ultimately influence attitudes, as was observed in Studies 1 and 2. However, in a purely mere source-exposure situation, it is expected that the resultant diffuse positive affect will linger until one is asked to make an evaluation on a measure of preference. Specifically, because the first evaluations these participants will be asked to make regard their attitudes toward an essay, it is expected that participants should only indicate more favorable attitudes, not more favorable thoughts, about the essay they have read if it was written by a source to whom they had been previously exposed relative to a novel source. This prediction is consistent with the results of Study 3.

This notion of channeling the diffuse positive affect that results from repeated source exposure has several important implications. First, with this idea comes the
possibility that repeated exposure to the message source can result in increased liking for the message source if participants’ diffuse positive affect is channeled toward preference evaluations of the source. Specifically, if participants are repeatedly exposed to the source of a message then are shown the face of the source identified as the essay author, participants should experience diffuse positive affect. If, immediately, and before they read the source’s essay, participants are asked how much they like the essay author, their diffuse positive affect should spill over and influence their liking for the source (cf. Zajonc, 1968, Study 3). In this situation, then, the diffuse positive affect should influence liking for the source and this liking should impact participants’ evaluation of the source’s essay. Such a finding would be consistent with several studies (e.g., Chaiken, 1980; Petty, Cacioppo, & Schumann, 1983) that have demonstrated that participants experiencing low processing motivation tend to form more favorable attitudes about a message written by a liked source than by a neutral or disliked source. Thus, in a similar fashion, those participants who are repeatedly exposed to the source of a message and, therefore, experience diffuse positive affect, might have that affect positively influence their liking for the source and, therefore, favorably influence attitudes. For this to happen, however, participants must be prompted to evaluate their liking for the source before they read the source’s essay. Given this, it is predicted that repeated source exposure can result in liking for the source and that this liking can lead to more favorable attitudes about the source—that is, an effect of repeated source exposure on message attitudes may be mediated by source liking within such a situation.

A second implication of diffuse-affect channeling is that the source mere exposure effect on attitudes may be attenuated or eliminated if the diffuse positive affect
is channeled, at least to some degree, away from evaluations of the message or the message source. That is, if the source is rated on a dimension that has not been shown to influence message agreement (as liking does) or on a dimension that has absolutely no implications for the quality of the message (like ability does) then the diffuse positive affect might not influence attitudes. Unfortunately, the list of source attributes that have been identified as influencing message attitudes is vast, including source liking, trustworthiness, intelligence, credibility, expertise, and social status to name a few (Petty & Wegener, 1998). Thus, the probability of identifying a trait or quality of the source that will in no way influence participants’ attitudes about the source’s message is rather remote.

However, the diffuse positive affect induced by repeated source exposure might be channeled away from evaluations of the message and message source by another, albeit less powerful, means. As Monahan et al. (2000) found, the diffuse positive affect induced by repeated stimulus exposure has been found to influence not only liking evaluations of that stimulus or related stimuli, but also—to a somewhat lesser but nonetheless significant extent—completely novel stimuli. Thus, it should be possible to channel the diffuse positive affect induced by repeated source exposure away from evaluations of the message or the message source, and toward evaluations of novel and irrelevant stimuli. So, for example, if participants experiencing diffuse positive affect are asked to indicate how good, pleasant, or nice various shapes are before they read an essay, their affect should not only positively influence those ratings, but those ratings should channel the diffuse affect toward considerations of geometric preferences and decrease the likelihood that that diffuse affect could influence evaluations of the essay or
the source. Thus, rating shapes just prior to reading an essay might significantly attenuate
the source mere exposure effect on attitudes.

The idea of variable mediation for the source mere exposure effect on attitudes is rather unique. First, under low-motivation/ability situations, individuals tend to be influenced by peripheral cues in that they mostly indicate more favorable attitudes about the message if they receive a positive level of the cue (e.g., source liking) than a negative level of the cue (e.g., source disliking). As motivation/ability increase to moderate or high levels, peripheral cues can bias the message-thoughts generated while reading a persuasive message (e.g., Wegener et al., 1994), which then correspondingly influence message attitudes. Thus, it is generally found within the persuasion literature (see Petty & Wegener, 1998) that variables affect attitudes by way of different processes (e.g., through source qualities, directly, or through biased thoughts) as individuals experience different levels of motivation/ability to effortfully process the merits of a persuasive communication. However, as discussed above, source mere exposure may affect attitudes via very different means at the same level of motivation/ability depending on toward what category of evaluation the diffuse positive affect induced by repeated source exposure might be channeled. That is, under the same level of motivation to process the message, individuals’ attitudes might be affected by repeated source exposure directly, through biased thoughts, through source liking, or negligibly depending simply on the first category of evaluations participants are asked make. To the best of the author’s knowledge, these four very different types of effects have not been demonstrated for the same variable under the exact same levels of motivation.
Implicit in the persuasion literature is the assumption that a given manipulation produces a given effect—that is verifiable by manipulations checks—and that the effect of the manipulation is responsible for differences in participants’ attitudes. That is, few studies actually test the mediational pathway from the manipulation to the effect of the manipulation on to the message attitude. This assumption is entirely reasonable however. For example, if a message source is described as being quite likable or unlikable and is in fact rated accordingly by participants, it makes perfect sense to assume that the effects of the liking manipulation on attitudes was due to actual liking for the source. It is unclear what else could be responsible for the effect if not actual source liking. However, the existence of diffuse positive affect is less obvious, more difficult to tap directly, and must be inferred by the nature of its effects. As discussed above, diffuse positive affect is predicted to impact whatever category of preference-based evaluations to which an individual responds. Thus, if it can be demonstrated that this diffuse positive affect can impact attitudes thorough very different means even when it is induced in the same way for all participants—via repeated source exposure—then fairly strong support for this construct would be garnered. Strong support for the influence of diffuse positive has already been provided in Study 3 wherein repeated source exposure directly influenced attitudes without impacting source liking, thoughts, or other source variables such as familiarity or similarity. Clearly then, some positive evaluative-inclination was induced by repeated source exposure. However, stronger support for the impact of diffuse positive affect on attitudes would be gained if repeated source exposure was found to influence attitudes via different means—consistent with its diffuse and “liquid” nature.
Conceptual Overview of, and Hypotheses for, Study 4

In Study 4, approximately one half of the participants were subliminally exposed to the face of an essay author ten times whereas the other half were not. After this exposure phase, participants were shown the face of the individual who authored an upcoming essay. Approximately one quarter of the participants then directly proceeded to read the essay and then answer all the main dependent measures (no-prompt conditions; cf. Study 3). Another one quarter of the participants were, after the exposure phase, prompted to consider what the message source can do/has done by answering questions pertaining to the essay author’s ability (source-ability prompt conditions; cf. Studies 1 and 2). Another one quarter of the participants were prompted to consider their liking for the message source by answering questions pertaining to participants’ liking for the essay author (source-liking prompt conditions). Finally, another one quarter of the participants were prompted to consider their preference for shapes by answering questions pertaining to their evaluations of three polygons (polygon-prompt conditions). After these last three groups answered their respective questions, they read the source’s essay and completed all dependent measures, including an attitude index, thought index, source-liking measures, source-ability measures, polygon-liking measures, and a forced-choice dichotomous source liking measure.

Hypothesis 1: The Source Mere Exposure Effect on Attitudes

Participants who were repeatedly exposed to the source of a persuasive essay, relative to participants who received no source exposure, were predicted to form more favorable attitudes about the essay written by that source more so within three of the four prompt conditions. Specifically, this source mere exposure effect on attitudes was
predicted to significantly attenuate, or not to occur at all, for participants in the polygon-prompt conditions. This is because the nonconscious positive affect induced from the repeated source exposures should be channeled towards considerations of geometric shapes and away from evaluations of the source or the message (see Figure 4.1). However, in the other prompt conditions, the diffuse positive affect was expected to positively affect attitudes through source liking in the source-liking prompt conditions, through message thoughts in the source-ability prompt conditions, but directly in the no-prompt conditions (see Hypotheses 2-4). Thus overall, an Exposure x Prompt interaction was expected in which only the polygon prompt condition would exhibit an attenuated or no source mere exposure effect on attitudes (Hypothesis 1).

_Hypothesis 2: Message Thoughts as a Dependent Measure and a Mediator_

It was predicted that only participants in the source-ability prompt conditions would generate a higher proportion of positive thoughts if they were repeatedly exposed to the message source than if they were not (Hypothesis 2a). This prediction, which is consistent with Studies 1 and 2, is derived from the reasoning that the diffuse positive affect induced by repeated source exposure can be channeled toward considerations of the source’s ability by having participants evaluate the source’s ability before they read the source’s essay (as was done in Studies 1 and 2). Having done this, these participants were expected to be more likely to consider and think about the source’s essay and diffuse positive affect was expected to positively bias these thoughts. Thus, participants who were both repeatedly exposed to the message source and were prompted to consider the source’s ability were expected to generate more positive message-thoughts than participants in all other conditions. Thus, overall, an Exposure x Prompt interaction was
expected in which repeated exposure source would lead to the generation of more favorable message thoughts in the source-ability prompt conditions relative to all other conditions.

Additionally, consistent with Studies 1 and 2, the favorability of participants thoughts were expected to at least partially mediate the effect of source mere exposure on attitudes in the source-ability prompt conditions only (Hypothesis 2b; see Figure 4.2). A correlate to this prediction is that the effect of source mere exposure on attitudes would neither be direct nor be mediated by source liking (Hypothesis 2c). Source liking was measured soon after participants read the essay.

**Hypothesis 3: Source Liking as an Effect and a Mediator**

It was predicted that only participants in the source-liking prompt conditions would like the source more if they were repeatedly exposed to the message source than if they were not. This prediction was derived from the reasoning that the diffuse positive affect induced by repeated source exposure can be channeled toward considerations of the source’s likeability by having participants evaluate how much they like the source before they read the source’s essay. Thus, participants who were both repeatedly exposed to the message source and were prompted to consider the source’s likeability were expected to like the message source more than participants in all other conditions (Hypothesis 3a). Thus, overall, an Exposure x Prompt interaction was expected in which repeated source exposure would lead to more source liking in the source-liking prompt conditions relative to all other conditions.

Additionally, liking for the message source was expected to at least partially mediate the effect of source mere exposure on attitudes in the source-liking prompt
conditions only (Hypothesis 3b; see Figure 4.3). A correlate to this prediction is that the effect of source mere exposure on attitudes would neither be direct nor be mediated by the favorability of participants’ message thoughts (Hypothesis 3c).

_Hypothesis 4: The Direct Effect of Mere Repeated Source Exposure_

It was predicted that participants in the no-prompt conditions would only form more favorable attitudes about the message in the essay if they were repeatedly exposed to the message source than if they were not. That is, message thoughts and source liking were not expected to be influenced by repeated source exposure under this prompt condition. This prediction, which is consistent with the findings of Study 3, was derived from the reasoning that the diffuse positive affect induced by repeated source exposure would simply linger until participants were required to respond evaluatively on a dimension of preference. In this case, the first dimensions of preference encountered were measures of message attitudes. In other words, the diffuse positive affect experienced by these participants in the source exposure conditions is not channeled onto considerations of source liking, source-ability, or polygon liking. Rather, these participants experience a diffuse positive affect that is still free to directly influence their attitudes about the source’s essay. Thus, participants who were both repeatedly exposed to the message source and received no prompt were expected only to evince a source mere exposure effect on attitudes (Hypothesis 4a). Additionally, the effect of source mere exposure on attitudes in the no-prompt conditions was expected to be direct and non-mediated (Hypothesis 4b; see Figure 4.4).
Hypothesis 5: Manipulation Checks Before and After the Essay

Participants in the source-ability prompt conditions were expected to rate the source’s ability, prior to actually reading the source’s essay, as being more favorable if they had been repeatedly exposed to the source than if they had not (Hypothesis 5a). Additionally, participants in the source-ability prompt conditions were expected to rate the source’s ability after reading the source’s essay as being more favorable if they had been repeatedly exposed to the source relative to all other conditions (Hypothesis 5b).

Participants in the source-liking prompt conditions were expected to rate the source as being more likable, prior to reading the source’s essay, if they had been repeatedly exposed to the source than if they had not (Hypothesis 5c). Additionally, participants in the source-liking prompt conditions were expected to rate the source’s likeability after reading the source’s essay higher if they had been repeatedly exposed to the source relative to all other conditions (Hypothesis 5d). It was also expected that, relative to all other conditions, participants in the source exposure/source-liking prompt condition would be more likely to indicate on a forced-choice dichotomous liking measure that they liked the message source relative to a novel individual (Hypothesis 5e). No other effects were expected for this measure.

Participants in the polygon-prompt conditions were expected to rate the polygons, prior to reading the source’s essay, more favorably if they had been repeatedly exposed to the source than if they had not (Hypothesis 5f). Additionally, participants in the polygon-prompt conditions were expected to rate the polygons after reading the source’s essay more favorably if they had been repeatedly exposed to the source relative to all other conditions (Hypothesis 5g). Additionally, all participants were asked to rate an entirely
novel forth polygon after they read the essay. It was expected that participants in the source exposure/polygon-prompt conditions would like this novel polygon more than participants in all other conditions, thus demonstrating that they do experience diffuse positive affect that is still capable of influencing preferences for geometric shapes, but not necessarily message attitudes.

STUDY 4

In Study 4, participants were informed that they would partake in two separate experiments. The first experiment was supposedly testing time-delay recognition for rapidly presented stimuli. During this task, approximately one half of the participants were subliminally exposed to one face ten times. This face was always the face of the author of an upcoming essay. The other half of the participants were not exposed to any faces during this task. Once this task had concluded, participants were shown the face of the individual who wrote the essay they were soon to read. After seeing this face, three fourths of the participants were asked to answer three scale items before reading the essay, whereas the other one fourth of the participants proceeded immediately to the essay. For one third of the participants who received pre-essay questions, the questions asked pertained to the essay author’s ability, for another third, the questions pertained to participants’ liking for the essay author, and for another third, the questions pertained to their evaluations of three polygons. These questions were intended to prompt participants to consider a specific category of preference evaluation. Participants then read the essay, containing relatively weak arguments, and responded to a computerized questionnaire containing the main dependent measures. Thus, there were eight conditions, four in which participants were exposed to the face of the essay author subliminally and four in
which participants were not exposed to the face of the essay author. Orthogonal to this manipulation, participants answered one of four categories of questions before they read the persuasive message: source-ability questions, source-liking questions, polygon-liking questions, or no questions.

Method

Participants and Design

In exchange for partial course credit, 185 male and female Ohio University psychology students independently participated in groups ranging from one to three individuals. Participants were randomly assigned to one of two exposure conditions and one of four prompt (i.e., category-of-question) conditions, and read a persuasive essay containing fairly weak arguments. The design of this study was therefore a 2 (source exposure: exposure vs. no-exposure) x 4 (prompt: source-ability vs. source-liking vs. polygon-liking vs. no prompt) between-subjects design. For reasons explained in the Results section, this study was replicated with slight modifications made to the source stimulus materials. One hundred sixty-eight students participated in this study but the data of 12 individuals were removed because they either saw the “subliminal” face during the exposure phase of the experiment or correctly identified the general hypothesis of the study. It appears that several prior participants disclosed the true nature of this experiment to classmates. Thus, the data from 154 participants of this replicated study were used in the reported analyses. Overall, the data from 339 participants were utilized to test the hypotheses laid forth for Study 4.

Procedure

Participants were seated in front of a computer and informed that they would
partake in two separate experiments. The first experiment, they were told, was testing
time-delay recognition for rapidly presented stimuli. The second experiment, participants
learned, was investigating individuals’ opinions about various issues. Therefore,
participants were told that they would read an essay and respond to questions about this
essay. At this point the experimenter told participants that further instructions would be
presented, and the experiment would be conducted, on the computer and that they should
now begin the experiment. The experiment was created and run using Medialab and
DirectRT software (Jarvis, 2002). The instructions participants read just prior to the
exposure phase, adapted from Monahan et al. (2000), were as follows:

The first study you will be participating in examines how well people are able to
recognize stimuli that are presented very rapidly. Stimuli will be presented to you
at very rapid speeds, so rapid that you may be unable to consciously perceive
them. After a stimulus is “flashed” briefly on the screen, it will be followed by a
1-s exposure of a background picture. This background picture is a print of black,
white, and colored dots. The background picture will give you a place to focus
your eyes before the next stimulus is flashed. A blank screen will appear for 1-s
before the stimulus is presented. Each stimulus will be flashed for 20 ms and will
be very difficult to see. Even if you feel that you can only see the background
picture and cannot see the stimuli, we would still like you to pay attention to the
background picture.

Participants first completed the “time-delay-recognition-for-rapidly-presented-
stimuli” task. During this task, approximately one half of the participants were
subliminally exposed to one face ten times. For all participants who were presented a
face, this face was the face of the individual said, slightly later in the experimental session, to have authored an upcoming essay. Participants were told that they would be tested for their recognition of these rapidly presented stimuli later, towards the end of the experiment. Participants further learned that in each trial, they would be shown a background picture between stimuli presentations in order to give their eyes a place to focus. Actually this picture, which contained black, white, and colored dots, masked the presentation of the faces. Once this task had ended, participants were shown the face of a college-aged individual and were told that this individual authored the essay they were about to read. One fourth of the participants then read the essay supposedly authored by that individual. However, another one fourth of the participants answered three scale questions pertaining to the essay author’s ability, for another fourth, the three questions pertained to participants’ liking for the essay author, and for another fourth, the three questions pertained to participants’ evaluations of three polygons, after which they read the same essay. After reading the essay, participants responded to a computerized questionnaire containing all dependent measures.

Independent Variables

Initial exposure. For approximately one half of the participants, a face was subliminally presented (20 ms) before the mask (1000 ms) during the first phase of the experiment. These participants were presented ten blank screen/face/mask sequences. The other half of the participants were presented a blank screen for 1000 ms followed by the mask (1020 ms). Participants in these conditions saw the mask for an additional 20ms so that the entire sequence was of the same duration for all conditions. These participants were presented ten blank-screen/mask sequences.
Essay author exposure. Participants were randomly assigned to read a persuasive essay supposedly written either by a particular male or female. Via random assignment, approximately half of the participants were shown a male or female face as being the essay author. In all source-exposure conditions, this face was the same face that was presented subliminally during the first phase of the experiment. For participants who were not subliminally exposed to a face during the first phase of the experiment, this face was entirely novel. Thus, for approximately half the participants, the presentation of the essay author’s face served as the eleventh exposure to a particular author whereas, for the other half, the essay author’s face was novel. A face of each gender was used to insure that subliminal source exposure effects on attitudes are not limited to male faces (cf. Study 3, but see Weisbuch et al. [2003] who recently found source exposure effects using only female faces).

Prompt (pre-essay questions). Immediately after participants were shown the picture of the essay author, three fourths of the participants were presented three questions of a given category whereas one fourth of the participants proceeded directly to the essay. One quarter of the participants answered questions, using 9-point scales, regarding the source’s general ability—“How able of a person to you think the author of the upcoming essay is?” (1 = not at all able to 9 = extremely able), “How well do you think the author of the upcoming essay can do things?” (1 = not at all well to 9 = extremely well), and “How successful do you think the author of the upcoming essay is?” (1 = not at all successful to 9 = extremely successful). Another quarter of the participants answered questions regarding how much they like the source—“How much would you say you like the author of the upcoming essay?” (1 = not at all to 9 = extremely), “How
much would you like to meet the person who wrote the upcoming essay?" (1 = not at all to 9 = very much), and “How well do you think you would get along with the author of the upcoming essay?” (1 = not at all well to 9 = very well). A final quarter of the participants answered questions entirely independent of the essay author; these questions pertained to participants liking for three separate polygons. Specifically, participants were separately shown three polygons and, after each was presented, were asked either “How good do you find this shape?” (1 = not at all good to 9 = very good), “How pleasant do you find this shape?” (1 = not at all pleasant to 9 = very pleasant), or “How nice do you find this shape?” (1 = not at all nice to 9 = very nice).

Essay

Just before seeing the essay author’s picture, participants were informed that the essay they were about to read discusses a sprinkler ordinance under consideration in the town of Vantana, Arizona (cf. Study 1). This information was intended to create a low issue-relevance situation for all participants.

After receiving initial information about the essay, being shown the essay author’s picture, and responding to the three manipulation questions, participants read an essay containing weak arguments in favor of the sprinkler ordinance. Only an essay containing weak arguments was used in the present study because source exposure was not found to interact with argument strength on the attitude index in either Studies 1 or 3. Additionally, because weak arguments tend to result in less favorable attitudes being formed and because source exposure has been found to increase attitude favorability, weak arguments were used to reduce the possibility of a ceiling effect occurring and, thus, weakening the effect of source exposure on attitudes.
Dependent Variables

The same dependent measures used in Study 3, most of which were completed on a computer, were used in the present study. Additionally, after the essay was read, all participants were asked all of the questions about source-ability, source-liking, and polygon-liking that originally preceded the essay depending on prompt condition. This was done for comparison purposes. Additionally, these source-liking questions served as the main dependent measure of source liking. All participants were first asked to indicate their attitudes about the essay with the same attitude index used in Studies 1 through 3. Next, participants answered questions about source-ability, source-liking, and polygon-liking (see Appendix A for all dependent measure presented in sequence).

Next, unlike Study 3, participants in Study 4 were asked to write down all the thoughts they had while reading the essay on a paper thought-listing sheet. This was done so that participants could return to their thoughts and indicate whether each thought was positive, negative, or neutral. By so doing, thought coders would have to impose their evaluations of thought positivity less often and participants’ proportion of positive thoughts could be investigated more purely. Additionally, participants were asked to indicate how confident they were in each thought on a scale with 1 = not at all confident to 9 = extremely confident. Recently, Petty, Briñol, and Tormala (2002) have found that confidence in one’s thoughts, in addition to thought positivity, impacts attitude favorability. Thus, this measure was included for exploratory purposes to determine whether or not repeated exposure to the source of a persuasive message enhances one’s confidence in the thoughts they generate about that message. No specific predictions were made about this variable, although it was speculated that thought positivity, which
is an evaluation of preference, may have been more strongly influenced by repeated source exposure—and more directly affect message attitudes—than thought confidence. This variable is not currently reported however.

Once participants finished this thought listing sheet, they commenced answering additional questions on the computer, including, for example, a source-recognition measure, personal-relevance measures, and suspicion measures.

Results

Study 4 was initially conducted by presenting one female or one male face as being the essay author, both of which came from a pre-tested set of faces (Ratcliff, 2003). These faces were chosen because they were rated close to, and did not significantly differ from, the midpoint of a 9-point attractiveness scale ($M_{\text{female}} = 4.80, M_{\text{male}} = 4.68$; one-sample $t < 1.18$, ns). Analyses conducted on the data gathered using these faces yielded no significant effects for the main dependent measures. In fact, the results tended to be contrary to the main prediction in that a nonsignificant reversal of the source exposure effect on attitudes, and indeed all main dependent measures, was observed. One possible explanation for these null results was that participants in this initial study (Study 4a) found the authors’ faces to be somewhat less attractive than was expected based on the pre-testing. Actually, as determined by one-sample t-tests, both the female face ($M = 4.33$) and the male face ($M = 4.37$) were rated significantly below the midpoint of the attractiveness scale ($t[93] = -4.56, p < .001$ and $t[90] = -3.19, p < .01$, respectively). Thus, it may have been that repeated exposure to a somewhat negative stimulus created diffuse negative affect that eliminated, and slightly reversed, the predicted main effect of source exposure on attitudes.
To address the above possibility, this study was replicated (Study 4b) using one of the female faces from Study 1 ($M = 5.38$ on attractiveness for that study) and one of the male faces from Study 3 ($M = 4.58$ for that study). It was thought that, since the expected effect of source exposure on attitudes was obtained using these faces in previous studies, these faces would be sufficient to produce the expected results in the present study. However, Study 4b replicated the null effects found in Study 4a—including the slightly reversed yet nonsignificant source exposure effect on the main dependent measures. In Study 4b, the female face ($M = 4.75$) was not rated below the midpoint of the attractiveness scale ($t[70] = -1.45, p > .05$) whereas the male face was ($M = 4.23; t[82] = -3.73, p < .001$).

To test for the possibility that participant gender and source gender may have in some way influenced the reported results, all dependent measures were analyzed using a 2 (source exposure: yes vs. no) x 2 (participant gender: female vs. male) x 4 (prompt: author-liking vs. author-ability vs. polygon-liking vs. no-prompt) x 4 (source face: Female from Study 4a vs. Male from Study 4a vs. Female from Study 4b vs. Male from Study 4b) between-subjects ANOVA. A main effect of participant gender on source attractiveness was obtained such that females found the faces to be more attractive than did males ($F[1, 332] = 22.04, p < .001$). However, no other significant effects were observed for this or the other main dependent measures (all $ps > .06$). Although some effects were close to being significant, these effects were not predicted nor were they readily interpretable upon closer examination. Additionally, these analyses are unlikely to have yielded valid results because there were as few as one male participant in several of the conditions. Therefore, it seems unlikely that participant gender significantly impacted
the results for Study 4 and, therefore, this factor will not be discussed further. (Participant gender was also recorded in Studies 1 and 3 but this factor yielded no significant results within these studies and, hence, this factor was not reported).

Because Studies 4a and 4b yielded comparable results and were identical other than the facial stimuli used and the time of the academic quarter in which the data were collected, these studies were combined in the analyses presented below. The reported analyses include a factor for the two studies conducted so that possible differences between the results of these studies can be accounted for. Finally, participants’ need for cognition was significantly correlated with both the attitude index \( r = -.147, p < .01 \) and the thought index \( r = -.184, p < .01 \), making this variable a candidate for use as a covariate. However, because using need for cognition as a covariate did not alter the results for the attitude, thought, or liking indices, only ANOVAs are reported in the below analyses (cf. Study 1).

*Affect Channeling*

Participants were randomly assigned to one of four prompt conditions (liking-prompt, ability-prompt, polygon-prompt, or no prompt) wherein they were asked to answer three prompt-consistent questions soon after they were consciously shown the author’s picture yet before they read the author’s essay. To determine whether or not the answers to these questions were favorably influenced by repeated source exposure, the respective prompt questions were analyzed using a 2 (source exposure: yes vs. no) x 2 (study: Study 4a vs. Study 4b) ANOVA for a given prompt condition (not including the no-prompt condition). Contrary to prediction, the analyses for both the liking-prompt questions \( (\alpha = .65) \) and polygon-prompt questions \( (\alpha = .73) \) revealed no significant
effects (all $F$s < 1). However, a marginal exposure effect consistent with prediction was found for the ability-prompt questions ($\alpha = .89$) such that participants may have felt the author was more able if they had been previously exposed to the author’s face ($M = 6.07$) than if they had not ($M = 5.65$; $F[1, 84] = 2.25, p = .07$, one-tailed). No other effects were observed for this measure (all $F$s < 1). Thus, overall, only moderate evidence exists in the ability-prompt conditions for the channeling of diffuse positive affect immediately following the exposure phase of the experiment. No such immediate affect channeling was observed in the other two prompt conditions.

These same prompt questions were asked of all participants soon after they read the author’s essay. For the three prompt conditions it was predicted that participants would respond more favorably to the set of questions to which they initially responded before reading the essay, relative to participants in the other prompt conditions, if they had been subliminally exposed to the essay author than if they had not. These three sets of three questions were independently entered into a 2 (source exposure: yes vs. no) x 4 (prompt: author-liking vs. author-ability vs. polygon-liking vs. no-prompt) x 2 (study: Study 4a vs. Study 4b) between-subjects ANOVA. Analyses on both the combined ability questions ($\alpha = .88$) and the combined polygon questions ($\alpha = .69$) yielded no significant results (all $p$s > .21). The analysis on the combined liking questions also produced no significant results (see below). As a final test for affect channeling, all participants were asked to rate their liking for an entirely novel shape. Because the diffuse positive affect should have been channeled toward consideration of geometric shapes for participants in the exposure/polygon-prompt condition, it was expected that these participants would like this shape more than participants in all other conditions. However, no effects for this
measure were found (all $ps > .10$), even when a focused contrast was employed ($p = .66$). Thus, with the measures reported in this section, remarkably little evidence was found for the notion of diffuse positive affect channeling.

*Personal Relevance*

Participants’ ratings of how personally relevant they found the sprinkler-ordinance essay were entered into a 2 (source exposure: yes vs. no) x 4 (prompt: author-liking vs. author-ability vs. polygon-liking vs. no-prompt) x 2 (study: Study 4a vs. Study 4b) between-subjects ANOVA. This analysis revealed only an Exposure x Prompt x Study interaction, $F(3, 339) = 9.63$, $p < .05$. This interaction likely indicates that for Study 4a, participants in the exposure/liking-prompt condition found the essay more personally relevant than participants in the no-exposure/liking-prompt condition, whereas this trend was reversed for Study 4b. Additionally, this interaction likely indicates that, for Study 4a, participants in the exposure/no-prompt condition found the essay less personally relevant than participants in the no-exposure/no-prompt condition, whereas this trend was reversed for Study 4b. The statistical significance of this interaction is of no clear theoretical importance. It is important to note, however, that participants in all conditions tended to find the essay of low relevance as intended (all $M$s < 3.29; grand $M = 2.65$).

*Attitudes*

The attitude index ($\alpha = .90$) was entered into an ANOVA identical to that above. This analysis revealed no significant effects (all $ps > .09$). An examination of the means (see Table 4) reveals that the means do not line up in the predicted pattern and are, actually, in the opposite direction. Therefore, it is not appropriate to analyze this data
using the focused contrast as initially intended.

For exploratory purposes, the attitude index was also entered into a similar ANOVA with participants’ level of need for cognition (high vs. low based on a median split) as an additional between-subjects factor. This analysis revealed a main effect of need for cognition such that high need-for-cognition individuals formed less favorable attitudes about the essay compared to low need-for-cognition individuals, $F(1, 338) = 6.39, p < .05$. Additionally, this analysis revealed an Exposure x Need for Cognition x Study interaction such that individuals in Study 4a with low need for cognition formed more favorable attitudes if they had been exposed to the essay author than if they had not, whereas this trend was reversed in Study 4b ($F[1, 338] = 3.89, p < .05$). No other effects were observed for this analysis. Importantly, the lack of an Exposure x Prompt x Need for Cognition interaction indicates that participants who differ in their need for cognition manifested the same nonsignificant pattern of means across the prompt and exposure conditions.

*Liking and Recognition Measures*

The liking measure ($\alpha = .74$) was entered into a 2 (source exposure: yes vs. no) x 4 (prompt: author-liking vs. author-ability vs. polygon-liking vs. no-prompt) x 2 (study: Study 4a vs. Study 4b) between-subjects ANOVA. This analysis revealed no significant effects (all $Fs < 1.39$ and $ps > .24$; grand $M = 4.80$; see Table 4 for means). As was observed for the attitude measure, the means (see Table 4) do not line up in the predicted pattern and are, actually, in the opposite direction. Therefore, it is not appropriate to analyze this data using a planned comparison as initially intended.
In addition to this measure, participants were asked to indicate which of two male faces, or which of two female faces they liked better, depending on the gender of the author they were presented. If they chose a face to which they had been exposed earlier in the experiment, the response was coded one. Otherwise, the response was coded zero. This forced choice liking measure revealed only one significant effect (all other $\chi^2$s[1, $Ns = 38$ to $47] < 1.46, ns) such that 100% of the participants in the exposure/polygon-prompt condition of Study 4b indicated that they liked the essay author best, whereas 77.3% of the participants in the no-exposure/polygon-prompt condition did so ($\chi^2[1, N = 38] = 4.19, p < .05$). Identical forced-choice measures were used to determine participants’ recognition of the face they had been presented. This analysis indicated that participants clearly recognized seeing the essay author’s face before they read the essay; there were only three errors made.

Finally, the ratings of the attractiveness of the author (grand $M = 4.40$) were entered into an ANOVA identical to those above. This analysis revealed only a non-predicted Exposure x Study interaction wherein participants of Study 4a found the author more attractive in the exposure conditions ($M = 4.48$) than in the no exposure conditions ($M = 4.23$), whereas this pattern was reversed for Study 4b ($Ms = 4.20$ and 4.70 respectively; $F[1, 339] = 4.02, p < .05$).

**Thought Index**

The thought index was entered into an ANOVA identical to those used for the attitude and liking indices (inter-rater agreement for codings was 91%). This analysis revealed no significant effects (all $Fs < 1$, grand $M = -.11$; see Table 4 for means). As was observed for the previous two measures, the means (see Table 4) do not line up in the
predicted pattern and are, actually, in the opposite direction. Therefore, it is not appropriate to analyze this data using a planned comparison as initially intended.

As was done for the attitude index, the thought index was also entered into a similar ANOVA with participants’ level of need for cognition (high vs. low based on a median split) as an additional between-subjects factor. This analysis revealed a need-for-cognition main effect such that high need-for-cognition individuals generated less favorable thoughts about the essay compared to low need-for-cognition individuals, $F(1, 335) = 10.94, p < .001$. This main effect is understandable given participants read a message containing weak arguments. No other effects attained significance (all $F$s < 1.06).

**Mediational Analyses**

Because analyses on the attitude measure and the predicted mediators of an effect of repeated source exposure on attitudes revealed no predicted significant effects, mediational analyses were not conducted for Study 4.

**Author Familiarity and Similarity**

For exploratory purposes, participants’ ratings for how familiar and how similar the essay author was to them were independently entered into the same ANOVA used to analyze the main dependent measures. The analysis for the familiarity measure revealed no significant effects (all $p$s > .13). However, the analyses of the similarity measure did yield two results. First, a main effect of study was observed such that participants in Study 4a found the essay author to be more similar to them than did participants in Study 4b ($F[1, 339] = 7.78, p < .01$). Qualifying this effect, however, was an Exposure x Prompt x Study interaction ($F[3, 339] = 8.67, p = .053$), which seems to indicate,
primarily, that a reverse exposure effect was found in the ability-prompt conditions of Study 4a, whereas an exposure effect was observed for participants in this condition for Study 4b. The theoretical significance of this finding is unclear.

Discussion

Given the consistent positive effect of repeated source exposure on essay attitudes observed in Studies 1 through 3, the pervasive null effects found for Study 4 are rather surprising. Indeed, Study 4 yielded no positive source mere exposure effect on attitudes (cf. Studies 1 through 3) or message thoughts (cf. Studies 1 and 2) but tended to produce a slight, yet nonsignificant reversal of the previously found effects. After initial analyses were conducted on Study 4a, it was noticed that the facial pictures presented as the essay author were rated below the midpoint of an attractiveness scale. It was reasoned that this slight unattractiveness might indicate that the author’s face was not a neutral stimulus but was instead somewhat negative. That being the case, the necessary conditions for a pure mere exposure effect might not have applied to this study as pure mere exposure effects pertain to situations in which the repeatedly exposed stimulus is both novel and evaluatively neutral. In the current case, it may be that the repeated exposure of a novel yet evaluatively negative stimulus induced some degree of diffuse negative affect (Stapel, Koomen, Ruys, 2002; see General Discussion) that eliminated and perhaps slightly reversed the source exposure effect on attitudes observed in the first three studies.

In an attempt to address this possibility, a replication of Study 4a (Study 4b) was conducted that used pictures that did induce the positive source exposure effect on attitudes in Studies 1 and 3. Again, however, this study replicated the null effects observed in Study 4a. Additionally, both faces were rated below the midpoint of the
attractiveness scale, although only one significantly. For exploratory purposes, the face that was not significantly below the midpoint of the attractiveness scale was analyzed independently for the attitude and thought indices using a 2 (exposure) x 4 (prompt) ANOVA for Study 4b. Although no effects reached significance (all ps > .15), it is interesting to note that the means did tend to orient in a pattern consistent with the source exposure effect observed for the earlier studies. This analysis may be used to suggest that the nonsignificant patterns of means observed in Study 4 may have resulted from participants’ slight negative evaluation of the author’s attractiveness despite the efforts taken to present neutral facial stimuli. However, given no statistically significant results were observed, this notion is at best a mere possibility.

Besides source attractiveness, a minor methodological difference between Study 4 and the first 3 studies (Study 3 in particular) may be responsible for the lack of results found for Study 4. Perhaps the most notable difference between Study 4 and the prior three studies is that the exposure phase of this experiment may have induced some degree of suspicion, curiosity, and perhaps reactance or bias-correction. In Studies 1 and 2, participants were provided elaborate cover stories for why they were presented the facial picture or name of an individual during the source-exposure phase of these experiments. Thus, participants probably did not find anything suspicious or odd about this phase of the experiment. In Study 3, participants were either not aware that they had been presented an individual’s face (in the subliminal conditions) or were told that they would see faces only to indicate that one trial was over and another was about to begin. Additionally, two faces were used during this phase, thus, arguably, making it relatively unsuspicious that one of these faces would later be introduced as the essay author.
Further, during this phase of the experiment, participants were led to believe that they were partaking in a word-identification task and were probably giving little consideration to the fact that they had been presented the faces. Thus, overall, participants were unlikely to find the presentation of faces during the exposure phase of Study 3 particularly suspicious or odd.

However, in Study 4, participants were told within the instructions for the first phase of the experiment that they would be presented stimuli very quickly—so quickly that they might not be able to see the stimuli—and that their recognition for these stimuli would be tested later. Therefore, unlike Study 3, participants were made aware that they would be presented subliminal stimuli. It seems possible that participants in Study 4 found the exposure phase of the experiment rather curious or suspicious. It is also possible that participants found it curious that they were asked to answer the prompt questions before reading the essay. Perhaps participants found these questions oddly placed within the experiment and this triggered their suspicions about the exposure phase of the experiment. Participants were not made aware that they would be asked these questions following the source re-exposure but before the essay was presented, thus, these questions may have indeed seemed oddly placed or curious. In Studies 1 and 2, the inadvertent “prompt questions” were expected and were part of an elaborate cover story and were, therefore, less likely to raise suspicion.

The effect of such suspicion may have, at some level, attuned participants in the exposure conditions to their inclination to evaluate positively. If participants did sense that they had been biased by the subliminal stimuli to respond favorably in the exposure conditions (in which positive bias was predicted to occur), these participants may have
engaged in a correction process wherein they attempted to report unbiased evaluations to the questions they were asked after the exposure phase of the experiment. Wegener and Petty’s (e.g., 1995) flexible correction model suggests that individuals will correct for bias if they are motivated and/or able to notice the bias, have a naive theory about the magnitude and direction of the bias, and are motivated to correct it. Although the fulfillment of these requirements cannot be confirmed with the data collected from Study 4, it is possible that suspicion surrounding the nature of the subliminal stimuli attuned participants in the exposure condition to a favorable bias. If individuals are resistant to being manipulated nonconsciously (which is reasonable), they may have been motivated to correct for this bias by moderating their evaluation of—or even negatively evaluating—the topic of the questions following the exposure phase of the experiment (i.e., the prompt questions and/or the attitude items). Although participants in the no-exposure conditions may have found the exposure phase of the experiment suspicious, there was no bias for them to detect and, therefore, they should evince no overall correction.

Overall then, it is possible that participants in the exposure conditions were made suspicious about the nature of the subliminal stimuli and, noticing their inclination to positively evaluate the first target they encountered, attempted to correct for this bias. However, since participants were unaware of what evaluations may have become biased, they applied a correction process to all targets of evaluation. Consistent with this idea, no evidence for diffuse negative affect channeling was observed but, rather, an overall attenuation or reversal of the standard source exposure effect was observed for most dependent variables (including unreported exploratory measures such as source
trustworthiness, \( ns \). That is, this correction process may have been applied indiscriminately to all (most) evaluated targets.

The instructions for the source-exposure phase of the experiment were adapted from Monahan et al.’s (2000) Study 2. The use of these instructions eliminated the need for an elaborate and perhaps confounding cover story and, because these authors found exposure effect using these instructions, it was presently reasoned that these would be ideal for use. However, even assuming the above bias-correction explanation is accurate for the results of Study 4, it is reasonable to predict that bias-correction was less likely to occur in the Monahan et al. Study 2. In their version of the instructions, participants were told that they would be subliminally presented drawings and then evaluating them. Thus, there was no need for suspicion because the experiment unfolded exactly as participants were told. Additionally, the Chinese ideographs and polygons they asked participants to evaluate were fairly innocuous and unimportant and, therefore, may not have motivated bias correction even if participants detected a bias. However, in Study 4, participants were aware that subliminal “pictures” were presented and then they encountered unexpected prompt questions after the source exposures, either of which may have elicited suspicion. Additionally, because participants were being asked to evaluate more substantive targets (the author, the essay, or unexpected polygons) they may have been more motivated than the participants in Monahan et al.’s Study 2 to correct for any perceived bias. That is, participants may not have wanted their attitudes about a person or essay to be influenced by subliminal stimuli.

Finally, there is perhaps a theoretically uninteresting factor that contributed to the null effects observed in Study 4. In particular, one quite noticeable difference between
Study 4a and an 4b is that several participants in the later study knew the general experimental hypothesis and were thus dropped from the analyses. This is to be contrasted against Study 4a in which no participant came close to guessing the experimental hypothesis. Also, there were several participants in Study 4b who were on track with regards to their identification of the general hypothesis. However, these were not close enough to legitimize their exclusion from data analyses. Indeed, several participants described the mere exposure effect in a vague way and one participant even noted the “Chinese Symbol” study when asked to report what they felt this experiment was trying to investigate. Therefore, it may be possible that the modifications made to Study 4b would have sufficiently addressed the source-attractiveness issue discussed above, and therefore, results consistent with predictions may have been obtained. However, participants of Study 4b—who participated in the later half of the spring quarter (and after Study 4a)—may not have been naive participants, either because they learned about the mere exposure effect in classes or were informed by friends/classmates as to the general purpose of this study. As a result, participants may have, to some extent, attempted to resist any possible influence of source mere exposure, thus attenuating the results of Study 4b.

GENERAL DISCUSSION

Studies reported both by Murphy et al. (1995) and Monahan et al. (2000) have provided support for the notion that repeated exposure to stimuli induces diffuse positive affect. Furthermore, this diffuse affect has been shown to favorably influence evaluations of these stimuli, novel similar stimuli, and even novel and categorically distinct stimuli (Monahan et al., 2000). Accordingly, the general thesis of this dissertation was that
repeated exposure to an essay author’s face or name would induce diffuse positive affect that would favorably influence participants’ evaluations of subsequently encountered stimuli, be those stimuli the author, thoughts about the essay, or the essay itself. Regardless of which of these stimuli was influenced, it was predicted that the downstream consequence of this influence would be the formation of more favorable attitudes.

Supporting this general prediction, the results of Studies 1 and 3 revealed that participants who were repeatedly exposed to the essay author’s face formed more favorable attitudes about the essay than did participants for whom the author was novel. This effect held true for Study 2 (using names) as well, although it was moderated, as predicted, by valenced information following initial source exposure. Additionally, the source mere exposure effect on attitudes was observed in two studies reported by Weisbuch et al. (2003) that were virtually identical to Study 3. Thus, the general hypothesis of this dissertation has enjoyed the empirical support of 5 studies.

Study 2 was conducted, in part, to lend evidence to Zajonc’s (2001) explanation for the inducement of diffuse positive affect via repeated stimulus exposure. As mentioned in the Introduction, Zajonc (2001) offered a classical-conditioning explanation for mere exposure effects. Basically, stimuli are generally exposed to individuals within a benign context and, therefore, become associated with approach tendencies or diffuse positive affect. However, following up this logic, it was predicted that presenting participants with a negative stimulus after the initial exposure to the message source should associate the source with negative and malignant situations, thus precluding the formation of diffuse positive affect and an effect of source exposure on attitudes.
Consistent with this prediction, no source exposure effect on attitudes was observed for participants who encountered a negative stimulus immediately following the initial presentation of the essay author. Thus, Study 2 offers fairly clean support for Zajonc’s explanation for the inducement of diffuse positive affect via repeated exposure.

While supporting Zajonc’s explanation for the inducement of diffuse positive affect via repeated exposure, the results of Study 2 may be inconsistent with a recently proposed perceptual fluency explanation for mere exposure effects in general. Specifically, Winkielman and Cacioppo (2001) have advanced a hedonic fluency model that predicts that the processing facilitation of a stimulus engenders a brief affectively positive reaction. They further suggest that this reaction can influence judgments and be observable using psychophysiological measures. With regards to the mere exposure effect, it is suggested that a re-exposed stimulus should be more perceptually fluent (as should be stimuli presented once for longer periods of time), thus triggering a positive affective reaction. Clear support for Winkielman and Cacioppo’s prediction was reported in two studies that measured positive affect using facial EMG. In their Study 1, participants were shown neutral stimuli that were preceded by a subliminal pattern-congruent prime (fluency conditions) or by a pattern-incongruent prime (non-fluency conditions). Immediately after each stimulus presentation, facial EMG was recorded for several seconds and self-reported liking for the stimulus was recorded. As expected, participants evinced a positive-affect response on the EMG immediately after viewing (for about 2 s), and indicated greater liking for, perceptually fluent stimuli. Study 2 replicated these results while manipulating perceptual fluency by displaying some stimuli for slightly longer durations than others. These results are clearly consistent with the
hedonic fluency model (see also, Reber, Winkielman, & Schwarz, 1998). It is noteworthy also that their Study 1 used a repeated exposure methodology to manipulate perceptual fluency and found a mere exposure/perceptual fluency effect on positive-affect reactions.

As just discussed, the hedonic fluency model suggests that upon the re-exposure of a stimulus, individuals experience some form of brief positive affective reaction that could explain why repeated stimulus exposure influences liking for that stimulus. In one of the conditions of the present Study 2, participants read an individual’s name then read a brief negative experience description authored by that individual but describing the events in an unrelated individual’s life. In the second half of the experiment, participants in the exposure conditions encountered this name again as being the author of an upcoming essay. The hedonic fluency model would predict that, relative to participant in the no-exposure conditions, participants should experience a positive reaction upon the re-exposure of this perceptually fluent name and that this reaction should influence following judgments. However, no repeated source exposure effect on attitudes or any main dependent measure was observed for this negative experience-description condition, a result consistent with Zajonc’s classical-conditioning explanation for exposure effects. Interestingly, it may be that positive affect was indeed induced, but that this affect, unlike the affect induced via Zajonc’s classical-conditioning account, is dedicated. That is, this brief positive affect may be tied to the perceptually fluent stimulus and not influence judgments of preference for other stimuli. Winkielman and Cacioppo (2001) did not describe the nature of this positive affective reaction other than to say that it was brief. If this affect was brief and dedicated to the author, this affect should not influence attitudes or thoughts about the essay and, because source liking was measured after the essay was
read, the positive affect may have subsided and, thus, no longer influenced the source-liking item. Therefore, future research should investigate the nature of this affect more closely to determine whether or not this affect is diffuse or specified.

It is presently reasoned that this affect should be dedicated to the re-exposed stimulus. Winkielman and Cacioppo (2001) offer that “easy processing may indicate good progress toward the goal of successful recognition and coherent interpretation of the target” and that “easy processing may be pleasant because it indicates the availability of appropriate knowledge structures to deal with a current situation” (p. 991). If the positive feelings induced by the perceptual fluency of a particular target influence preference judgments about other targets, incorrect input regarding progress toward a recognition goal would be supplied for the new target. Therefore, provided the accuracy of Winkielman and Cacioppo’s explanation, it makes little sense for the positive feelings induced from an unrelated stimulus to be applied to preference judgments about a new stimulus. Rather, the positive affect should be dedicated to the fluent stimulus if that affect is to be informative and purposeful whatsoever.

The Channeling of Diffuse Positive Affect

Although the effect of repeated source exposure on attitudes was consistent across the first 3 reported studies, the mechanism by which diffuse positive affect resulted in this effect was not. In particular, in both Studies 1 and 2 the effect of repeated source exposure on attitudes was mediated by the favorability of participants’ thoughts about the essay whereas the effect was direct and not mediated in Study 3. It was offered that methodological differences between the first 2 studies and Study 3 might have been responsible for this mediational difference. Specifically, participants in Studies 1 and 2
responded evaluatively on measures of preference related to the message source during the initial exposure to that source. In particular, these questions asked participants to evaluate what the source can do (Study 1) or what the source had done (Study 2). It was reasoned that these questions primed participants to think evaluatively about what the source can do or has done and that the second exposure to the message source induced diffuse positive affect that was therefore channeled towards evaluations of the source’s output (e.g., the essay). However, because participants in Study 3 were not inadvertently prompted to think about what the source can do or has done, the diffuse positive affect induced via repeated source exposure was not channeled towards message thoughts but instead had a direct effect on attitudes.

This analysis led to the development of the central thesis of the reported Study 4 wherein the diffuse positive affect induced via repeated source exposure, although unspecified, can become channeled toward a particular category of evaluation. It was further hypothesized that diffuse positive affect could be channeled onto other categories of preference evaluation besides essay thoughts such as source liking or even liking for unrelated novel stimuli such as polygons. If the diffuse positive affect was channeled toward considerations of source liking, then this variable was expected to be favorably influenced and, in turn, mediate the effect of repeated source exposure on attitudes. However, if the diffuse affect was channeled toward considerations of polygon liking—which is removed both from the source and the essay—then the diffuse positive affect was no longer expected to influence attitudes about the essay. Study 4 was constructed to test the notion that the diffuse positive affect resulting from repeated source exposure could be channeled and, therefore, impact attitudes via different mechanism or not at all.
Unfortunately, however, Study 4 yielded no predicted results for the attitude measure—and indeed, no theoretically important results for any of the main dependent measures whatsoever—and the idea of diffuse affect channeling could not be tested directly. Importantly, however, results reported by Weisbuch et al. (2003) are somewhat consistent with the occurrence of diffuse positive affect channeling. A detailed discussion of this article appears in the below section.

The notion of diffuse-positive-affect channeling is important for several reasons. First, and perhaps most significant, the diffuse positive affect induced via repeated exposure may be channeled quite subtly such that it can influence message thoughts and therefore attitudes even when participants are not particularly motivated to process a message. This effect, which was observed in Studies 1 and 2, is quite unusual within the persuasion literature (see Petty & Wegener, 1998) as message thoughts tend to impact attitudes primarily under conditions of moderate to high processing motivation. Thus, the notion of affect channeling presents a possible means by which thoughts may influence attitudes even when processing motivation is rather low. Second, affect channeling predicts that the diffuse positive affect induced via repeated source exposure can affect a wide array of attitude-mediating variables depending on the current evaluative mindset of the individual. Thus, repeated source exposure may influence attitudes not only via straightforward variables such as source liking (see Weisbuch et al. 2003), but also by way of many other source characteristics. Additionally, repeated source exposure may influence attitudes directly if the diffuse affect is not channeled or may not influence attitudes if the diffuse affect is channeled towards considerations of message- and source-irrelevant stimuli. Thus, strong evidence for diffuse positive affect channeling should be
pursued, as the effects predicted by this concept are, to the best of the author’s knowledge, both novel within the persuasion literature and likely to be generative.

A Misattribution Explanation?

Weisbuch et al. (2003) discuss two seemingly contradictory processes by which source mere exposure may influence evaluations and designed two studies to determine which is most likely correct. Citing Monahan et al. (2000), Murphy et al. (1995), and Zajonc (2001), Weisbuch et al. (2003) offer that an affective primacy (AP) account suggests that re-exposure to a stimulus produces an automatic positive evaluation of that stimulus as well as a global positive affective state. However, it should be noted that, as is clearly specified in this dissertation, re-exposure to a stimulus is actually suggested to induce diffuse positive affect that, in turn, can influence evaluations toward any stimulus (Monahan et al., 2000). In contrast to the AP account, Weisbuch et al. (2003) offer that a misattribution model (MA; e.g., Bornstein & D’Agostino, 1994; Jacoby et al., 1989) suggests that re-exposure to a stimulus triggers a positive yet ambiguous response that indicates that there is a match between the current stimulus representation and a previously encoded representation. Furthermore, this response can be correctly attributed to the stimulus when this stimulus is the focus of attention, resulting in increased liking or attraction for that stimulus. However, when additional stimuli are concurrently available to attention this response can be incorrectly attributed to another stimulus, resulting in increased liking or attraction for the other, as opposed to the re-exposed, stimulus.

Additionally, Weisbuch et al. (2003) suggest that the AP account predicts that mere exposure effects inevitably impact global liking whereas the MA model offers that the positive response triggered by repeated exposure may be misattributed to other
judgment dimensions without influencing source liking. As a result, Weisbuch et al.’s interpretation of the AP account suggests that repeated source exposure will necessarily influence source liking and that if an effect of repeated source exposure on essay attitudes is observed, it will be mediated by this liking. Thus, according to the AP account, if source exposure does not favorably influence source liking, no attitude effect should be observed. In contrast, the MA model suggests that the positive response that occurs with source re-exposure can be misattributed to the persuasive argument, thus favorably impacting message attitudes but not source liking. It is important to note that the diffuse-positive-affect-channeling hypothesis advanced within this dissertation makes a similar prediction to the MA model. Specifically, this hypothesis argues that repeated source exposure does not inevitably influence liking for the source, but instead induces diffuse positive affect that can become channeled toward any category of preference evaluation considered during or immediately after repeated source exposure. Thus, to the extent that the diffuse affect is channeled toward a preference evaluation that is distinct from source liking, an effect of repeated source exposure on source liking should become less likely.

Identical to the current Study 3, Weisbuch et al.’s Study 1 utilized a 3 (source exposure: supraliminal vs. subliminal vs. no-exposure) x 2 (argument strength: strong vs. weak) between-subjects design but had participants read an essay (on top of which the essay author’s face appeared) discussing an involving topic. After participants read the essay, they indicated their message agreement, rating of attractiveness for the source, and perceptions of argument validity. The AP approach was suggested to predict that both repeated supraliminal and subliminal source exposure should result in increased source liking that, in turn, should positively impact participants’ attitudes about the source’s
essay. The MA model was suggested to predict that the positive reaction triggered by repeated supraliminal source exposure is most likely to influence evaluations of the source because attribution or attentional specification can readily occur. Therefore, an effect of repeated source exposure on attitudes would be mediated by source liking. However, they suggested that attribution or attentional specification of the positive reaction is less likely to occur if the source had been subliminally presented. Therefore, under these conditions, the positive reaction can be, and would be, attributed to other salient stimuli, like the source’s essay (i.e., an effect of repeated source exposure on attitudes should be direct). Curiously, this prediction is at odds with the study reported by Kunst-Wilson and Zajonc (1980) wherein polygons that were previously subliminally exposed to participants were preferred even in the presence of another polygon (to which Weisbuch et al. would apparently predict a positive reaction would be misattributed). Regardless of the argument quality manipulation, the results of Weisbuch et al.’s Study 1 are consistent with the predictions laid forth for the MA model.

The results of Weisbuch et al.’s Study 1 are somewhat surprising in light of the studies reported within this dissertation. Specifically, no effects of source liking (source attractiveness in Weisbuch et al.’s Study 1) were observed across Studies 1 through 3. This is particularly noteworthy since source exposure was supraliminal in Studies 1 and 2 and in some conditions of Study 3. Weisbuch et al. reported a weak ($p = .09$) effect of exposure on source attractiveness that was explored using two, a priori comparisons to test the predictions of the MA model. They report that the source was found less attractive in the no-exposure condition than the supraliminal exposure condition but not in the subliminal condition. An examination of the means, however, reveals a positive
linear trend for the no-, subliminal-, and supraliminal-exposure conditions, respectively, yet no comparison between the subliminal- and supraliminal-exposure conditions was reported. Actually, the predictions for the AP model were not tested precisely. Indeed, it seems quite possible that if the AP account’s prediction was tested such that the two exposure conditions were compared simultaneously to the no-exposure condition, this contrast would be significant, thus rendering the support for the AP and MA perspectives equitable for this measure. However, the standard deviations and cell sizes were not reported and have yet to made available, so this possibility is speculative.

Interestingly, Weisbuch et al.’s reported effect of source exposure on source attractiveness (at least for the supraliminal conditions, but see above discussion) is somewhat consistent with the affect-channeling concept advanced in this dissertation. Weisbuch et al. contiguously presented to participants eight female faces. In the supraliminal conditions, the source’s face was randomly presented four times, whereas the other faces were randomly presented between one and three times, 1 s each. In the no-exposure condition, the source’s face was removed from the set of faces. Finally, the subliminal condition was identical to the supraliminal condition except for that the source’s face was presented for 23 ms. Immediately after the presentation of the set of faces, yet before the source’s essay was presented, participants were asked “several irrelevant questions about the group of persons they had just seen” (Weisbuch et al., 2003, p. 693). Importantly, two of these three questions “How intelligent did this women appear to be?,” “How attractive did these women appear to be?,” and “How many women did you view?” (M. Weisbuch, personal communication, June 18, 2003) may have channeled the diffuse positive affect—presently argued to be induced via repeated source
exposure—towards the attractiveness (liking) dimension. (Participants’ actual responses to these items have yet to be made available, however, so it is not yet possible to confirm that participants in the exposure conditions responded more favorably to these items relative to those in the no-exposure conditions. However, the results of Weisbuch et al.’s attractiveness and attitude measures are consistent with affect channeling.) Thus, although no direct evidence for the notion of diffusive affect channeling was garnered from Study 4, promising evidence has been supplied from other studies. That is, consistent with the diffuse-positive-affect-channeling hypothesis advanced in this dissertation, participants across several studies have been observed to render more positive evaluations on whatever dimension of preference they are asked to evaluate during (Studies 1 and 2) or immediately after (Weisbuch et al., Study 1) repeated source exposure relative to participants in no-exposure conditions. Thus, participants who have experienced repeated exposure to the source, relative to those who have not, generate more favorable thoughts about a message if they evaluate the source’s level of ability during the exposure phase of the experiment (Studies 1 and 2), find the source more attractive if they to some extent evaluate the source’s level of attractiveness immediately following the exposure phase of the experiment (Weisbuch et al., 2003; Study 1), or directly form more favorable attitudes about the message if that is the first target of evaluation made after repeated source exposure (Study 3). Additionally, the repeated source exposure effects on thoughts (Studies 1 and 2) and attractiveness (for the supraliminal conditions of Weisbuch et al.’s Study 1) mediated the positive effect of source exposure on attitudes, as predicted for Study 4. Still, evidence has yet to be
obtained that diffuse positive affect may be channeled away from considerations of the source or the source’s message and, therefore, not influence essay attitudes.

It is worth discussing that Weisbuch et al. (2003) conducted a second study that methodologically replicated the first but asked participants after they read the essay, but before the main dependent measures were completed, whether or not they saw the face of the essay author earlier in the experiment. After this, participants indicated their rating of attractiveness for the source, perceptions of argument validity, and message agreement. It was predicted that by so doing, participants in the supraliminal, but not subliminal, exposure conditions would realize they did see the source’s face earlier and, thus, attribute their positive reactions to this previous exposure. As a result, these participants should discount their positive reaction, rendering it non-informative to and non-impactful on liking for the source or attitudes about their essay. However, it was predicted that since participants in the subliminal exposure conditions did not consciously experience the source’s face, they should attribute their positive reaction to the essay, not to source attractiveness, and thus still form more favorable attitudes than those in the other conditions. Weisbuch et al.’s Study 2 results are consistent with their predictions and, thus, do lend some support to the MA model.

However, an alternative explanation for Weisbuch et al.’s (2003) Study 2 results also seems possible. Specifically, consistent with the flexible correction model (Wegener & Petty, 1995) discussed earlier, it may have been that by asking participants in the supraliminal conditions if they saw the source’s face earlier in the experiment, a potential bias was made salient to them. Thus, these participants may have been motivated to correct for this bias and therefore adjusted their initial positive inclinations towards the
source and the essay in a more negative direction. This explanation may apply to the subliminal conditions as well, but less straightforwardly. Recall that participants were asked how attractive they found the group of faces presented during the exposure phase of the experiment. Importantly, participants in the subliminal condition did not consciously see the picture of the essay author within this presentation. Thus, when they evaluated the set of faces for attractiveness, the diffuse positive affect may not have been powerfully channeled towards consideration of the source’s attractiveness—in a sense, their group-attractiveness ratings were barely an evaluation of the author’s picture. Indeed, this may explain why participants in the subliminal conditions of Weisbuch et al.’s Study 1 appeared to exhibit moderate source-attractiveness ratings between those of the other two conditions. As a result of this possible weak channeling, the diffuse positive affect may have still been largely unspecified and therefore available to influence participants’ attitude toward the essay. Therefore, the effect of subliminal repeated source exposure on attitudes was mostly direct (as it was for the participants in the subliminal-exposure conditions of Weisbuch et al.’s Study 1). Thus, if asking participants whether they saw the author of the essay during the exposure phase (and 71% incorrectly reported that they did) alerted them to a potentially biased positive evaluation of the author, these participants might also have corrected their ratings of source attractiveness in a negative direction. However, since the effect of the diffuse positive affect induced via repeated source exposure was mostly (according to the alternative account) direct for participants in the subliminal conditions, this correction to evaluations of the source may not have altered attitudes toward the essay.
It is again important to note, however, that evidence inconsistent with the MA account has been replicated across the reported Studies 1 through 3. Specifically, in none of these studies did repeated source exposure (even supraliminal exposure) influence source liking, yet in all studies a positive effect of source exposure on attitudes was observed. Overall then, it is suggested that the misattribution model cannot fully account for the effect of repeated source exposure on attitudes. Finally, repeated stimulus exposure has been demonstrated to specifically induce diffuse positive affect (e.g., Murphy et al. 1995; Monahan et al. 1999) that by nature is unspecified. Therefore, it makes little sense to describe the channeling (or attribution) of this affect as a misattribution. Diffuse positive affect is free-floating, unattached, and may become dedicated or channeled, but not incorrectly.

Future Directions and Limitations

The design of the reported Study 4 could yield the strongest support to date for the idea of the diffuse-positive-affect-channeling hypothesis. As discussed above, Studies 1 through 3 and Weisbuch et al.’s Study 1 provide convergent evidence for this hypothesis. However, one rather critical prediction of this hypothesis is that diffuse positive affect induced via repeated source exposure can be channeled away from preference evaluations related to the message or message source, thus eliminating any effect of repeated source exposure on attitudes. Therefore, the first clear step for source mere exposure and persuasion research would be to replicate Study 4 addressing some of the methodological issues raised in the Discussion of Study 4 that may have contributed to the null results for that study. In particular, it may be important that participants are
unaware of the fact that they will be presented subliminal stimuli during the experiment. Perhaps a subliminal exposure phase similar to that used in Study 3 would be ideal.

Importantly, repeated source exposure may not actually be the phenomenon of interest in the current line of research. Rather, repeated source exposure is merely a convenient means by which to induce the diffuse positive affect that is ultimately argued to be the key player behind the reported results. Interestingly, evidence for the existence of diffuse negative affect has also been demonstrated (e.g., Murphy et al., 1995; Stapel et al., 2002) which opens the possibility that both diffuse positive as well as diffuse negative affect may influence persuasion processes. Thus, it is entirely possible that the inducement of diffuse negative affect would produce effects opposite to those expected for diffuse positive affect. So, for example, diffuse negative affect could be channeled toward consideration of source-ability, thus leading to the generation of more negative message thoughts and, ultimately, more negative attitudes about a message than if no diffuse affect was induced. This possibility could be explored by replicating any of the studies presented in this dissertation (preferably Study 4 however) but subliminally displaying either a frowning face or affectless face (see Stapel et al., 2002) in replacement of the exposure phase of the experiments.

Without using the mere exposure procedure however, it may be difficult to induce diffuse affect using facial stimuli. Across several experiments, Stapel et al. (2002) presented to participants smiling or frowning faces under suboptimal viewing conditions of 30 ms or 100 ms then had them rate the happiness exhibited by an affectively neutral face. Results demonstrated that the diffuse positive or negative affect induced from the 30 ms presentations influences participants’ ratings of a neutral face such that it was
perceived as being more happy or sad, respectively. However, when smiling or frowning faces were presented for 100 ms, a contrast effect was observed such that the neutral face was perceived as being more sad or happy, respectively. Predicting these results, Stapel et al. (2002) suggest that with longer suboptimal presentations diffuse positive affect is enriched with distinguishing features of the stimulus and boundaries between this and other stimuli are formed (i.e., the affect becomes specified to the face). Thus, under these slightly longer viewing conditions, the face is nonconsciously represented as a distinct stimulus that can be contrasted away from other category-congruent stimuli (e.g., a neutral face). Therefore, it seems likely that the effects of diffuse affect on attitudes can only be tested with faces if the faces are presented very rapidly or if fairly neutral faces are presented repeatedly to induce diffuse positive affect (e.g., the present studies).

Additionally, diffuse-affect effects on attitudes may be infrequent in our everyday lives as it is unlikely that we will encounter a smiling or frowning individual for 30 ms who happens to be the source of an immediately encountered persuasive message. Thus, repeated source exposure may be a more likely way to induce at least diffuse positive affect using facial stimuli.

Importantly, the research conducted by Stapel et al. (2002) highlights a difficulty in obtaining pure repeated-source-exposure effects. Stapel et al. found that subliminal facial expressions of happiness and sadness induced diffuse affect. Thus, to the extent that subliminally presented facial pictures display positive or negative affect within a repeated exposure paradigm, it is possible that the diffuse positive affect induced via repeated source exposure may be enhanced or attenuated depending on the valance of the diffuse affect induced via the expression displayed by the face. To minimize the
likelihood of this occurring, future investigations of the source mere exposure effect on attitudes should use carefully pre-tested affectless faces or perhaps only names during the exposure and re-exposure phases of the experiments.

Winkielman and Cacioppo (2001) have presented strong data in support of their hedonic fluency model. It is important at this point to determine if the affect induced via perceptual fluency is dedicated or diffuse. As discussed above, it is currently argued that perceptual fluency is likely to induce dedicated affect. However, an empirical test of this speculation is clearly necessary. After all, it is important to know if mere exposure effects are merely a category of perceptual fluency effects or if mere exposure produces unique (diffuse) effects. Assuming that a replication of Study 4 yields results consistent with the diffuse-affect-channeling hypothesis, the design could be used to determine if the affect induced by perceptual fluency is also diffuse. Specifically, Winkielman and Cacioppo found that participants experienced a more positive reaction to stimuli presented at slightly longer (but undetectably so) durations relative to slightly shorter durations. Therefore, Study 4 could be again replicated except that the source of the persuasive communication would be presented to participants only once, either for 500 ms or 700 ms, for example. If the pattern of results for this study match the pattern of results expected for the original repeated-source-exposure Study 4, then it would seem that perceptual fluency induces diffuse positive affect and that mere exposure effects result from perceptual fluency per se. Otherwise, it would seem that mere exposure and perceptual fluency produce different forms of positive affect. Clearly, however, more simple designs could be employed to test this notion as well.
Future research should also seek to determine whether repeated exposure to other message features besides the source could similarly induce diffuse positive affect. Such studies could be rather easy to conduct. For example, two versions of a persuasive message could be constructed—one in which a salient target word is placed twice and one in which a salient target word and a replacement synonym word are each placed once. Alternatively, all the instructions for an experiment could appear in one font and the persuasive message could either appear in that same font (repeated exposure) or a different font (no exposure). These possibilities are not particularly interesting theoretically, but they may be useful in assessing the feasibility of using mere exposure as a persuasive tool.

The diffuse-positive-affect-channeling hypothesis predicts that the effect of repeated source exposure on attitudes is a fickle phenomenon. In particular, it is suggested that the diffuse positive affect induced via repeated source exposure can be channeled toward already primed categories of preference evaluation (e.g., Studies 1 and 2) and categories of preference evaluation considered immediately after the inducement of diffuse positive affect (see Weisbuch et al., Study 1). Therefore, repeated source exposure effects may only be observed under carefully constructed conditions (e.g., a laboratory experiment or a well crafted advertisement) that insures that the diffuse positive affect is either channeled toward a category of preference evaluation that mediates an effect on attitudes or that individuals’ attitude about a message is the first preference evaluation made by individuals after the inducement of diffuse positive affect. Thus, under a wide range of naturalistic conditions, repeated source exposure effects on attitudes may be defused by the current evaluative mindset of an individual or by the
bounty of targets that may be evaluated prior to the evaluation of a message and thus absorb the diffuse positive affect induced by repeated source exposure. Additionally, it is important to determine the longevity of the effects discussed within this dissertation. To the best of the author’s knowledge, the inducement of diffuse positive affect via repeated exposure has been tested within narrow windows of time. It is unclear empirically if diffuse positive affect would be induced via re-exposure after long periods of delay following the initial repeated source exposure phase. Therefore, delay as a possible limitation of the effect of repeated exposure on diffuse affect should be explored.

In sum, the mere exposure literature, and the interface of this and the persuasion literature, presents multiple avenues of inquiry and research that, if followed, could greatly increase our understanding of both. As is evident from the Introduction and Discussion sections of this dissertation, the reason for, number of effects of, and influences on the mere exposure effect are far from clear. Indeed, approximately 35 years after Zajonc’s (1968) original work, the mere exposure effect continues to inspire new findings and theories while at the same time remaining somewhat of an enigma. It is hoped that this dissertation presents some data or ideas that not only further our understanding of mere exposure in persuasion, but also our understanding of the long-lived mere exposure effect itself.
References


Perlman, D. & Oskamp, S. (1971). The effects of picture content and exposure frequency
on evaluations of negroes and whites. *Journal of Experimental Social Psychology*, 7, 503-514.


Table 1

Means and N’s for the Attitude Index, Message-Thought Index, and Liking Measure as a Function of Exposure to the Source of the Persuasive Communication and Argument Strength (Study 1)

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Measure</th>
<th>n</th>
<th>Argument Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Attitude</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong Exposure</td>
<td>7.28 (1.11)*</td>
<td>21</td>
<td>.064 (.411)</td>
</tr>
<tr>
<td>No Exposure</td>
<td>6.79 (1.50)</td>
<td>18</td>
<td>.023 (.435)</td>
</tr>
<tr>
<td>Weak Exposure</td>
<td>6.79 (1.87)</td>
<td>20</td>
<td>.116 (.669)</td>
</tr>
<tr>
<td>No Exposure</td>
<td>6.49 (1.38)</td>
<td>20</td>
<td>-.260 (.476)</td>
</tr>
</tbody>
</table>

*Note. Standard deviations are reported within parentheses.

*n = 20.
Table 2

*Means and N’s for the Attitude Index, Message-Thought Index, and Liking Measure as a Function of Exposure to the Source of the Persuasive Communication and Valence of Experience Descriptions (Study 2)*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Attitude</th>
<th>Message-Thoughts</th>
<th>Liking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Experience Description</td>
<td></td>
</tr>
<tr>
<td>Neutral</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure</td>
<td>20</td>
<td>6.74 (1.57)</td>
<td>-.058 (.588)</td>
</tr>
<tr>
<td>No Exposure</td>
<td>17</td>
<td>5.86 (1.41)</td>
<td>-.432 (.363)*</td>
</tr>
<tr>
<td>Negative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure</td>
<td>22</td>
<td>5.40 (1.46)</td>
<td>-.375 (.600)</td>
</tr>
<tr>
<td>No Exposure</td>
<td>22</td>
<td>5.80 (1.82)</td>
<td>-.514 (.485)</td>
</tr>
</tbody>
</table>

*Note.* Standard deviations are reported within parentheses.

*n* = 16.
### Table 3

*Means and N’s for the Attitude Index, Message-Thought Index, and Liking Measure as a Function of Exposure to the Source of the Persuasive Communication and Argument Strength (Study 3)*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Attitude</th>
<th>Message-Thoughts</th>
<th>Liking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure</td>
<td>n</td>
<td>Argument Strength</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Strong</td>
<td></td>
</tr>
<tr>
<td>Subliminal</td>
<td>12</td>
<td>7.08 (1.78)</td>
<td>.468 (.593)</td>
</tr>
<tr>
<td>Supraliminal</td>
<td>13</td>
<td>7.77 (.972)</td>
<td>.625 (.517)*</td>
</tr>
<tr>
<td>No Exposure</td>
<td>12</td>
<td>6.68 (1.45)</td>
<td>.060 (.605)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weak</td>
<td></td>
</tr>
<tr>
<td>Subliminal</td>
<td>12</td>
<td>6.32 (1.64)</td>
<td>-.262 (.540)</td>
</tr>
<tr>
<td>Supraliminal</td>
<td>15</td>
<td>6.25 (1.45)</td>
<td>-.384 (.498)**</td>
</tr>
<tr>
<td>No Exposure</td>
<td>15</td>
<td>5.16 (2.16)</td>
<td>-.197 (.517)</td>
</tr>
</tbody>
</table>

*Note.* Standard deviations are reported within parentheses.

*\( n = 10, \quad **n = 12.\)
Table 4

Means and N’s for the Attitude Index, Message-Thought Index, and Liking Measure as a Function of Exposure to the Source of the Persuasive Communication and Prompt (Study 4)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Exposure</th>
<th>n</th>
<th>Message-Thoughts</th>
<th>Liking</th>
<th>Liking Prompt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exposure</td>
<td>40</td>
<td>5.82 (1.44)</td>
<td>-.009 (.478)</td>
<td>4.72 (1.44)</td>
</tr>
<tr>
<td></td>
<td>No Exposure</td>
<td>46</td>
<td>6.47 (1.19)</td>
<td>-.060 (.495)</td>
<td>4.95 (1.19)</td>
</tr>
<tr>
<td></td>
<td>Ability Prompt</td>
<td>41</td>
<td>6.07 (1.64)</td>
<td>-.158 (.537)</td>
<td>4.55 (1.19)</td>
</tr>
<tr>
<td></td>
<td>No Exposure</td>
<td>43</td>
<td>6.53 (1.47)</td>
<td>-.100 (.650)*</td>
<td>5.01 (1.19)</td>
</tr>
<tr>
<td></td>
<td>Polygon Prompt</td>
<td>38</td>
<td>6.32 (1.35)</td>
<td>-.008 (.549)</td>
<td>4.75 (1.52)</td>
</tr>
<tr>
<td></td>
<td>No Exposure</td>
<td>46</td>
<td>6.11 (1.72)</td>
<td>-.122 (.580)**</td>
<td>4.80 (1.35)</td>
</tr>
<tr>
<td></td>
<td>No Prompt</td>
<td>41</td>
<td>6.30 (1.83)</td>
<td>-.119 (.623)</td>
<td>4.94 (1.64)</td>
</tr>
<tr>
<td></td>
<td>No Exposure</td>
<td>44</td>
<td>6.43 (1.46)</td>
<td>-.154 (.513)</td>
<td>4.67 (1.43)</td>
</tr>
</tbody>
</table>

Note. Standard deviations are reported within parentheses.

*$_n = 42$, **$_n = 45$. 
Figure 1. Representation of the mediational analysis of Study 1. Significant pathways are indicated with bold lines whereas non-significant pathways are indicated with dashed lines. The number within parentheses indicates the beta weight before entering potential mediating variables.
Figure 2.1. Representation of the mediational analysis for the neutral experience-description condition of Study 2. Significant pathways are indicated with bold lines whereas non-significant pathways are indicated with dashed lines. The number within parentheses indicates the beta weight before entering potential mediating variables.
Figure 2.2. Representation of the mediational analysis for the negative experience-description condition of Study 2. Significant pathways are indicated with bold lines whereas non-significant pathways are indicated with dashed lines.
Figure 3. Representation of the mediational analysis of Study 3. Significant pathways are indicated with bold lines whereas non-significant pathways are indicated with dashed lines.

\[ \beta = 0.211 \]
\[ \beta = 0.504 \]
\[ \beta = 0.219 \]
\[ \beta = 0.274 \]
Figure 4.1. Representation of the expected significant mediational pathways for the polygon-prompt condition of Study 4. Predicted significant pathways are indicated with bold lines whereas non-significant pathways are indicated with dashed lines.
Figure 4.2. Representation of the expected significant mediational pathways for the ability-prompt condition of Study 4. Predicted significant pathways are indicated with bold lines whereas non-significant pathways are indicated with dashed lines.
Figure 4.3. Representation of the expected significant mediational pathways for the liking-prompt condition of Study 4. Predicted significant pathways are indicated with bold lines whereas non-significant pathways are indicated with dashed lines.
Figure 4.4. Representation of the expected significant mediational pathways for the no-prompt condition of Study 4. Predicted significant pathways are indicated with bold lines whereas non-significant pathways are indicated with dashed lines.
Appendix A

Because we have found that opinions on the issues in this kind of article can influence other perceptions, please answer the following questions about the issue in the article.

1. The position discussed within the essay is:

   (Please respond to every scale)

   - bad 1 2 3 4 5 6 7 8 9 good
   - foolish 1 2 3 4 5 6 7 8 9 wise
   - negative 1 2 3 4 5 6 7 8 9 positive
   - unfavorable 1 2 3 4 5 6 7 8 9 favorable
   - harmful 1 2 3 4 5 6 7 8 9 beneficial

2. How much would you say you like the author of the essay?

   - not at all 1 2 3 4 5 6 7 8 9 extremely

3. How much would you like to meet the person who wrote the essay?

   - not at all 1 2 3 4 5 6 7 8 9 very much

4. How well do you think you would get along with the author of the essay?

   - not at all well 1 2 3 4 5 6 7 8 9 very well

5. How able of a person to you think the author of the essay is?

   - not at all able 1 2 3 4 5 6 7 8 9 extremely able

6. How well do you think the author of the essay can do things?

   - not at all well 1 2 3 4 5 6 7 8 9 extremely well
7. How successful do you think the author of the essay is?
   not at all successful  1  2  3  4  5  6  7  8  9  extremely successful

8. How good do you find this shape? (A shape was presented)
   not at all good  1  2  3  4  5  6  7  8  9  very good

9. How pleasant do you find this shape? (A shape was presented)
   not at all pleasant  1  2  3  4  5  6  7  8  9  very pleasant

10. How nice do you find this shape? (A shape was presented)
   not at all nice  1  2  3  4  5  6  7  8  9  very nice

11. How much would you say you like this shape? (A novel shape was presented)
   not at all  1  2  3  4  5  6  7  8  9  very much

12. I currently feel:
   bad  1  2  3  4  5  6  7  8  9  good
   sad  1  2  3  4  5  6  7  8  9  happy
   unpleasant  1  2  3  4  5  6  7  8  9  pleasant
13. Please write down all of the thoughts (one per line) that went through your mind as you read the article about university service. Thoughts could be about what the article said, what it would mean to you, or about anything else that happened to come to mind while you were reading the article. Do not worry about grammar, spelling, or complete sentences – just write down the basic content of each thought you can remember. Please remember to write one thought per line. (Please complete this thought-listing without looking back at the article.)

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

At this point, please go back and indicate whether the items that you have written were positive, neutral, or negative. Please use a (+) for positive, a (O) for neutral, and a (-) for negative. Also, using any number between 1 and 9, please indicate how confident you are in EACH thought from (1) “not at all confident in this thought” to (9) “extremely confident in this thought.” Once you have completed this, please go on to the next page.
14. How honest do you feel the person who wrote the essay is?
   very dishonest 1 2 3 4 5 6 7 8 9 very honest

15. How kind do you think the person who wrote the essay is?
   very cruel 1 2 3 4 5 6 7 8 9 very kind

16. To what extent did you recognize the person who wrote the essay?
   not at all 1 2 3 4 5 6 7 8 9 very much

17. How knowledgeable is the person who wrote the essay?
   very 1 2 3 4 5 6 7 8 9 very knowledgeable
   unknowledgeable

18. How objective is the person who wrote the essay?
   very un-objective 1 2 3 4 5 6 7 8 9 very objective

19. How believable is the person who wrote the essay?
   not at all 1 2 3 4 5 6 7 8 9 very believable
   believable

20. Rate the intelligence of the person who wrote the essay.
   not at all 1 2 3 4 5 6 7 8 9 very intelligent
   intelligent

21. How trustworthy is the person who wrote the essay?
   not at all 1 2 3 4 5 6 7 8 9 very trustworthy
   trustworthy
22. How credible is the person who wrote the essay?
   not at all  1  2  3  4  5  6  7  8  9  very credible
   credible

23. How familiar does the person who wrote the essay seem to you?
   not at all  1  2  3  4  5  6  7  8  9  very much

24. How similar is the person who wrote the essay to you?
   not at all  1  2  3  4  5  6  7  8  9  very much

25. How attractive is the person who wrote the essay?
   not at all  1  2  3  4  5  6  7  8  9  very much

26. How much effort do you feel you put into understanding what the article had to say?
   very little  1  2  3  4  5  6  7  8  9  very much
   effort     effort

27. How relevant was the essay topic to you?
   not at all  1  2  3  4  5  6  7  8  9  very relevant
   relevant   relevant

28. How much do you care if the sprinkler ordinance is approved or not?
   not at all  1  2  3  4  5  6  7  8  9  very much

29. The article was:
   useless  1  2  3  4  5  6  7  8  9  useful
   uninteresting  1  2  3  4  5  6  7  8  9  interesting

30. I have read this article before:
   Yes    No    Unsure    If yes, where? _______________
31. Which of the following two pictured individuals do you like better? (Two faces were be presented)

32. Which of the following two pictured individuals have you seen within the context of this experiment? (Two faces were be presented)

33. Please write down all of the arguments used in the article about university service that you can remember. (on computer)

34. What do you think this experiment is trying to investigate? (on computer)