Framing Effects of Online Behavioral Advertising Educational Messages and the Moderating Role of Regulatory Fit

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Abstract

Online behavioral advertising (OBA) has drawn great attention of regulatory agencies. In the Federal Trade Commission’s most recent OBA guidelines, advertising companies are required to provide educational information to consumers, and inform consumers of their option to opt out. However, there has been no systematic investigation of the effects of OBA educational messages on consumer responses to OBA. This study examined the effects of positive-negative valence framing in OBA educational messages on consumers’ attitude toward OBA, and intention to opt out of OBA. In addition, the study looked into the moderating role of the fit between the regulatory focus of consumers and the regulatory focus of the educational message in valence framing effects.

A 2 (valence framing: positive vs. negative) × 2 (regulatory focus framing: promotion vs. prevention) × 2 (individuals’ regulatory focus: promotion vs. prevention) between-subject online experiment was conducted. The results demonstrated that a positively-framed OBA educational message led to more positive cognitive attitude toward OBA, and less intention to opt out, compared to a negatively-framed message. Furthermore, regulatory fit had a marginal moderating effect on the relationship between valence framing and consumers’ intention to opt out. Theoretical and practical implications as well as directions for future research are presented.
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CHAPTER 1. INTRODUCTION

As you browse online, have you ever noticed and clicked on the blue triangular Ad Choice icon at the corner of a banner ad? A recent study by Ipsos (2014) reported that an increasing number of US Internet users were becoming aware of the Ad Choice icon, rising from 21% in 2013 to 37% in 2014. The icon aims to label behaviorally targeted ads as such, and when clicked, the icon invites consumers to learn about how online behavioral advertising (OBA) works and to opt out if they would like to. Would the OBA educational information provided to consumers play a role in their attitude toward OBA and opt-out decisions?

Online behavioral advertising (OBA) refers to the practice that advertisers track a consumer’s online activities over time – including the searches one conducts, the websites one visits, and the content one views – in order to deliver advertising targeted to the individual consumer’s interests (Federal Trade Commission [FTC], 2009). With the advancement of online tracking and behavioral profiling techniques, OBA has gained dramatic popularity among marketers, with US spending on OBA reaching $1 billion in 2008 and nearly quadrupling to $3.8 billion in 2011 (eMarketer, 2012).

However, perennial concerns about consumer privacy in the practice of OBA exist, pointing out that consumers are under-protected and under-informed of the tracking and usage of their data by marketers. Specifically, the data used for the OBA purposes are not personally identifiable in most cases, and thus do not require consumers’ permission for the data collection in the first place. Also, consumers tend to have limited
knowledge about the various stakeholders in OBA, the technology employed in the data collection, and the practice of OBA. As a result, consumers are unaware of their options and lack the ability to prevent unwanted data collection by advertisers.

In response to public concerns about insufficient safeguards regarding OBA, regulatory agencies have taken actions to regulate OBA and protect consumer privacy, the most recent one being the Federal Trade Commission’s (FTC) OBA principles released in 2009. According to its transparency and consumer control principles, every website where data is collected for behavioral advertising should provide a clear and prominent notice regarding behavioral advertising, as well as an easily accessible way for consumers to choose whether to have their information collected for such purposes (FTC, 2009).

In response to the FTC’s guidelines, the Digital Advertising Alliance (“DAA”), which is an OBA self-regulatory business league composed of leading advertising industry associations including American Association of Advertising Agencies (“4As”), American Advertising Federation (“AAF”), Association of National Advertisers (“ANA”), Direct Marketing Association (“DMA”), Interactive Advertising Bureau (“IAB”), and Network Advertising Initiative (“NAI”, joined in 2010), developed a set of self-regulatory principles clarifying the responsibilities of different entities of OBA in the implementation of FTC’s principles. Among the DAA’s principles, the transparency and consumer control principles require entities that collect consumers’ Web viewing data for the OBA purposes and websites on which such data are collected and used for OBA to attach a uniform link/icon and label to each OBA advertisement. Further, clicking on this
link/icon should provide a disclosure from the entity about its OBA practices and a mechanism that allows consumers to choose whether to permit collection of their data and use or transfer of the data to a non-affiliate for OBA purposes. In addition, the education principle calls for “a robust industry-developed Website(s) that provide consumers with educational material about OBA” (Digital Advertising Alliance [DAA], 2009).

The most visible outcome of DAA’s self-regulatory principles for consumers is the launch of the Ad Choice icon program in 2012. An Ad Choice icon would appear near the corner of an online behavioral ad delivered by DAA participants. When clicked, the icon will direct consumers to a consumer choice webpage that presents educational information about OBA and offers the choice to opt out from OBA. The consumer choice page could either be established by advertisers that collect data for the specific ad the consumer is viewing, or by industry associations (e.g., DAA, NAI), in which case consumers can opt out from all participating advertisers in the association. Aside from DAA and NAI’s consumer choice pages, major Internet advertising companies, such as Google, Yahoo, and Facebook, have created their own versions of OBA educational messages and opt-out pages since the launch of the Ad Choice program.

Noteworthy is the interesting and potentially important discrepancy in the description of the practice of OBA between the FTC’s report and the advertising industry’s educational messages. For example, the FTC’s definition of OBA states, “online behavioral advertising involves the tracking of consumers’ online activities in order to deliver tailored advertising” (FTC, 2009, p. 2). By comparison, NAI describes
OBA as “interest-based advertising” that delivers customized ads “based on predictions about consumers’ interests generated from their visits over time and across different websites” (Network Advertising Initiative [NAI], n.d., http://www.networkadvertising.org/choices/#completed). Furthermore, several industry-developed educational messages introduce OBA with apparent favorable implications. To illustrate, Twitter’s privacy control page has a section titled “why are tailored ads better” following their definition of OBA (Twitter, n.d., https://support.twitter.com/articles/20170407), and DAA’s consumer choice page also includes a section called “the benefits of relevant advertising” (DAA, n.d., http://youradchoices.com/).

Would the different content of OBA educational messages impact consumer responses to OBA? Survey data indicate that such possibility may exist, with nearly one third of US Internet users saying the information available on the consumer choice pages, along with the option of opting out of OBA, would make them feel more positive about behavioral targeted ads (Ipsos, 2014). Notwithstanding the growth of self-regulatory educational materials, very few scholarly attention has been paid to the influence of OBA educational messages on consumers’ attitudinal and behavioral responses toward OBA, and those that examined the topic were mostly exploratory and descriptive, without directly testing the causal link between different educational messages and consumer responses, and lacking the psychological mechanism explaining such effects (Leon, Cranshaw, Cranor, Graves, Hastak, & Xu, 2012).
Drawing on the message framing effect literature, the current study tests whether and how different descriptions of OBA and the consequences of “opt-out” in the educational messages would affect consumers’ attitude toward OBA and their subsequent “opt-out” decisions. Additionally, this study examines a possible moderating effect of regulatory fit on consumer responses to OBA.

This study will contribute to advertising theory and practice in several ways. First, it will advance the OBA literature by focusing on the effects of OBA educational messages, a relatively new and underexamined influence on consumers’ attitudes and avoidance behaviors toward OBA. Also, this study is the very first study extending the regulatory focus theory to the domain of OBA, and it sheds empirical light on potential importance of individual factors affecting consumer responses to OBA. As a practical contribution, this study will offer valuable insights to policymakers in regard to evaluating and improving the effectiveness of OBA public education campaigns. Also, this study will provide helpful guidance to advertisers for developing more socially responsible OBA educational messages.

In the following chapter, previous research on influencing factors of consumer responses to OBA and personalized ads will be reviewed, followed by discussion of framing theory and a review of research on message framing effects, and discussion of regulatory focus theory and regulatory fit and a review of related research literature, followed by the Hypotheses chapter. Then, the Method chapter will describe this study’s experimental design, sample, stimuli, procedure, and measurements. This is followed by
the Result and Discussion chapters, where the study findings are discussed and theoretical and practical implications are presented.
CHAPTER 2. LITERATURE REVIEW

Consumer Attitude toward OBA and Influencing Factors

A growing number of descriptive studies have examined consumers’ general attitudes toward OBA, and the findings suggest that consumers appear to have mixed and polarized attitudes toward OBA (e.g., McDonald & Cranor, 2010). On the one hand, there are studies indicating that consumers generally hold a negative attitude toward OBA, and prefer random ads in comparison with personalized ads (e.g., Turow, King, Hoofnagle, Bleakley, & Hennessy, 2009; Yu & Cude, 2009). For example, Turow and his colleagues (2009) conducted a nationwide telephone survey about American adults’ opinions on OBA, and results showed that 66% of respondents answered “no” when asked whether they wanted websites to show advertisements tailored to their interests. Moreover, after the interviewers informed those who answered “yes” and “maybe” that the information used for the ad tailoring would be gathered by tracking consumers’ online activities, 18% more of the participants rejected behaviorally targeted advertising, resulting in a total of 84% respondents opposed to OBA.

Contradictory to Turow et al.’s (2009) findings, Sableman, Shoenberger, and Thorson (2013) found from a scenario-based survey that consumers preferred tailored advertising to irrelevant advertising. In this study, participants were not directly presented with the concept of retargeted advertising or behavioral advertising in the questionnaire, but instead asked to imagine a real life situation where they encountered behaviorally targeted ads. Also, McDonald and Cranor’s (2010) study presented a polarized pattern of
consumers’ attitude toward OBA. When asked whether they wanted the benefits of behavioral advertising, 21% of the participants agreed or strongly agreed, while 21% disagreed or strongly disagreed, showing an even split on two opposite sides.

Several studies have explored factors influencing consumer responses to OBA and personalized ads, proposing possible explanations for the differential consumer attitudes. The following sections discuss influencing factors of consumers’ attitudes and behavioral intentions toward OBA and personalized ads identified by past research, including characteristics of ad messages, contextual and individual factors, and the impact of consumer education materials.

**Ad message factors.** Most previous studies on OBA, and more broadly personalized ads, have focused on the effects of ad message characteristics, of which much scholarly attention has been paid to relevance to the self and ad informativeness (e.g., Jensen, King, Carcioppolo, & Davis, 2012), and privacy invasiveness of personalized ads (e.g., Malheiros, Jennett, Patel, Brostoff, & Sasse, 2012). Common findings indicate that ad relevance and informativeness, which refer to the extent to which consumers perceive personalized ads to be relevant and useful in achieving their shopping goals, are likely to result in positive persuasive outcomes. Past research has demonstrated that higher ad relevance and informativeness of personalized ads lead to more positive attitudes toward OBA (Kim, 2013), more attention from consumers (Bang & Wojdynski, 2016), more click-through and view-through intentions of personalized ads (Bleier & Eisenbeiss, 2015), and greater purchase intentions (Tam & Ho, 2005).
On the other hand, increased concern about the privacy invasiveness of personalized ads, defined as the degree to which consumers think that personalized ads invade their right to prevent the disclosure of personal information to others, is found to be associated with negative persuasive outcomes, such as more negative attitude toward OBA (Smit, Van Noort, & Voorveld, 2014), lower purchase intentions (Yu & Cude, 2009), and more ad avoidance behaviors (Baek & Morimoto, 2012; Smit, Van Noort, & Voorveld, 2014).

To summarize, consumers are likely to experience conflicted perceptions of OBA between perceived benefits of ad relevance and informativeness, and perceived risks of privacy, when faced with OBA and personalized ads (Awad & Krishnan, 2006; Chellappa & Sin, 2005). Several studies have attempted to examine which one of the two contradicting perceptions would play a more important role in guiding consumers’ attitudinal and behavioral responses toward OBA, but the results are inconsistent. For example, Xu et al. (2011) found that perceived utility of information in personalized advertising could override privacy concerns, but Malheiros et al. (2012) suggested that the perceived benefits of ad relevance were offset by privacy concerns.

**Contextual and individual difference factors.** A relatively small number of studies have investigated the effects of contextual factors (with respect to where and when consumers encounter OBA) on consumer responses to OBA and personalized ads. Several factors have been found to influence the effects and effectiveness of personalized ads in comparison with non-personalized ads, including consumers’ web searching goals (Bleier & Eisenbeiss, 2015), stages of consumer buying process (Lambrecht & Tucker,
2013), and the cognitive demand of a given task (Bang & Wojdynski, 2016). Bleier and Eisenbeiss (2015) found that personalized ads outperformed non-personalized ones when the ads were congruent with consumers’ online searching motives, but led to more negative evaluations of the ad when the ads did not fit consumers’ search motives. Also, Bang and Wojdynski (2016) reported that personalized ads were more effective in grabbing consumers’ attention than non-personalized ads only when consumers were engaged in a highly cognitively demanding task on the Internet (e.g., information searching as opposed to entertainment).

Very few studies have examined individual difference factors in connection to consumer responses to behaviorally targeted advertising, with one of them being Yu and Cude’s (2009) study. Yu and Cude (2009) explored gender differences in perceptions of behaviorally targeted ads and found that women had more negative attitude toward behaviorally targeted ads than men but were more likely to click on behaviorally targeted ads.

**Effects of educational messages.** Effects of consumer educational messages regarding OBA on consumer attitude toward OBA and their opt-out choices have been scarcely examined. However, a few qualitative studies suggest that consumers frequently misunderstand the information presented in OBA educational materials, and become confused about the purpose of the opt-out option (Leon et al., 2012; McDonald & Cranor, 2010; Ur, Leon, Cranor, Shay, & Wang, 2012). For example, Ur et al. (2012) found that multiple participants in their interview misread “Interest Based Ads,” a word used by advertisers to describe OBA, as “Internet Based Ads,” which, one participant thought,
meant “really great deals online.” Also, in Leon et al.’s (2012) study, half of the participants did not understand the purpose of the consumer choice page, and believed that the page was aimed to allow them to express preferences that would result in more relevant ads. In addition, McDonald and Cranor (2010) exposed four interviewees to a text description of what OBA opt-out does, which was derived from the NAI’s website. Three out of the four participants misunderstood the meaning of opting out of OBA after reading the educational message, and several thought the opt-out page was a scam.

Additionally, different educational messages may lead consumers to make different opt-out choices. Leon et al. (2012) showed participants the consumer choice pages from five advertising companies: AOL, Yahoo, Google, Microsoft, and Monster Career Network, and the results demonstrated that participants presented with the educational message from Yahoo were significantly less likely to opt out of OBA than those exposed to educational messages from the other four companies. However, the researchers did not offer any explanation for the result, and a significant limitation of this study was that all of the presented messages were from the advertising industry.

**Section summary.** This section reviewed previous research on consumers’ attitudinal responses to OBA and influencing factors. Generally, most studies have focused on the effects of characteristics of ad messages, especially two major influencing factors, ad informativeness and perceived privacy invasiveness. While the former has been found to lead to positive consumer reactions to OBA, the latter is likely to result in negative reactions. Additionally, a couple of contextual and individual difference factors,
like consumers’ web searching goals and gender, have been identified as significant influencing factors on consumers’ attitude toward OBA.

Among the various influencing factors of consumer responses to OBA, the influence of consumer educational materials has been rarely examined. Only very limited qualitative studies have explored potential effects of OBA educational messages. These studies suggest that exposure to OBA educational messages does not guarantee a clear and accurate understanding of OBA. However, the findings are only suggestive of potential ineffectiveness of existing educational materials, and no systematic investigation exists about the effects of different educational messages presented by different stakeholders of OBA. To fill this gap in the research literature, the current study investigates how the content of OBA educational messages affects consumer responses to OBA. Based on the few qualitative studies on the effects of consumer educational materials, it is expected that different framing of OBA in educational messages would be an especially important factor guiding consumer responses to OBA. Consumers generally have limited knowledge about OBA, cookies, and their choices (Ur et al., 2012), and thus would likely rely on external information sources, like consumer educational materials, to form their judgments of OBA and make decisions.

Especially building upon the preliminary findings from Leon et al. (2012), the current study tests the effects of educational materials provided by different parties involved in OBA, including advertisers, industry associations, government regulatory agencies, and consumer advocacy groups, with particular focus on the effects of different message frames emerging in their descriptions of OBA and opt-out.
More importantly, this study is aimed to provide a theoretical explanation for the outcomes of consumers’ exposure to different OBA educational messages. Specifically, applying the framing theory, it is hypothesized that different frames of different educational messages, especially how OBA is defined and how the consequences of opt-out are described, would influence consumers’ attitude toward OBA and their opt-out intentions. The next section discusses the framing theory and reviews research on message framing effects.

**Framing Theory and Research on the Effects of Message Framing**

**Framing theory.** Although there are some different conceptualizations about framing theory, generally, framing theory as a theory of media effects suggests that a framing effect involves two types of frames, media frames and audience frames, and the interplay between the two (e.g., Gitlin, 1980; Entman, 1993). A majority of studies on message framing effects have focused on examining media frames’ impact on individuals’ frames and attitudes.

Stemming from journalism studies, a media frame refers to an emphasis placed on the presentation of a certain issue (de Vreese, 2005). Gamson and Modigliani (1987) defined a frame in the media as “a central organizing idea or story line that provides meaning to an unfolding strip of events” (p. 143). According to Entman (1993), frames in the media “highlight some bits of information about an item that is the subject of a communication, thereby elevating them in salience,” making the piece of information “more noticeable, meaningful, or memorable to audiences” (p. 53). A number of journalism scholars have identified different types of media frames (e.g., Semetko &
Valkenburg, 2000), and examined the formation process of news frames from a sociological perspective (e.g., Shoemaker & Reese, 1996).

On the micro level, an audience frame is the “schemata of interpretation” that individuals use to classify and interpret information as they form attitudes (Entman, 1991, p. 7). The concept of “audience frame” or “individual frame” followed Entman’s (1993) notion of the interactive nature of framing effects. He argues that media frames do not directly lead to individuals’ attitudinal and behavioral changes, but have to correspond with the schemata in one’s belief system to be noticed, elaborated on, and remembered by message receivers. Audience frames can either be “global and long-term views” resulting mainly from personality traits, or “short-term, issue-related frames of references” (Scheufele, 1999, p. 107). Primarily from an issue-related perspective, Chong and Druckman (2007a) defined audience frames as a set of dimensions that individuals put emphasis on among various considerations of an object, when judging the object.

The basic premise of framing theory is that an issue can be viewed from various perspectives, and individuals can put different emphases on different aspects of the issue (Chong & Druckman, 2007a). Therefore, a framing effect occurs when a frame in the media affects an individual’s frame in thought (e.g., Scheufele, 1999). As individuals rely heavily on their own frames in judgment formation, media frames can further alter one’s attitudes and behaviors toward the issue presented in the media (Chong & Druckman, 2007). Framing effects have been extensively examined across different sub fields in mass communication, including journalism (e.g., Entman, Matthes, & Pellicano, 2009), political communication (e.g., Chong & Druckman, 2007b), health communication (e.g.,
Krishnamurthy, Carter, & Blair, 2001), and advertising (e.g., Levin, Schneider & Gaeth, 1998), and a wide range of studies have confirmed that different framing of information has significant impact on individuals’ cognitive beliefs about the issue in question, evaluation of the issue, and intention to perform a certain behavior regarding the issue.

For example, some early framing studies in the field of journalism compared media frames and audience frames within the same topic (e.g., Huang, 1996; Price, Tewksbury, & Powers, 1997). Empirical evidence suggested that news frames had a marked effect on individuals’ information processing, especially in terms of the weight individuals gave to a specific dimension of an event (e.g., Price, Tewksbury, & Powers, 1997). Later, scholars in strategic communication applied the concept of message framing to the context of persuasion, and found supportive evidence that different message frames influenced individuals’ evaluations of a certain issue and subsequent behaviors related to the issue (e.g., Nelson & Oxley, 1999).

**Frames in mass communication.** Different typologies of media frames have been developed and examined in prior research on media framing. Some are limited to a specific topic or event, like the launch of the Euro (de Vreese, Jochen, & Semetko, 2001). Some may transcend particular issues but are pertinent to a certain sub field, such as Semetko and Valkenburg’s (2000) classification of five news frames: conflict, human interest, attribution of responsibility, morality, and economic consequences. Some message framing approaches, like episodic vs. thematic framing and gain vs. loss framing, have attracted considerably more scholarly attention than others (e.g., Gross, 2008). In this section, I will review previous empirical studies on effects of several
common types of frames in persuasive communication messages that are relevant to the current study.

First, some framing effects could result from the words used to describe an event (Schuldt, Konrath, & Schwarz, 2011) or the format of presenting a message (Ahn et al., 2015). For instance, Schuldt et al.’s (2011) study showed that audience’s belief about the existence of global climate change was significantly weaker when the phenomenon was described as “global warming” rather than “climate change.” Also, Ahn et al. (2015) investigated the presentation of nutrition information on restaurant menus, and found that a frame with numeric values and low-calorie symbols was more effective than a frame with numeric values only in impacting consumers’ judgment on the restaurant’s healthiness, when consumers considered the nutrition information as highly credible.

Second, a frame in mass communication could be created by how a single attribute of an object or event is labeled. Prior research on this type of framing has found that individuals tend to respond more favorably when the same attribute is labeled in a positive light than in a negative light (Levin & Gaeth, 1988; Linville, Fischer, & Fischhoff, 1993). For example, consumers had more positive attitude toward ground beef when it was described as 75% lean vs. 25% fat (Levin & Gaeth 1988), and people showed more support for condom use when it was described as having 90% success rate vs. 10% failure rate (Linville, Fischer, & Fischhoff, 1993).

Third, frames may refer to the key considerations and interpretations in the presentation of a given issue. To illustrate, Will, Decina, Maple, and Perkins (2015) examined the effectiveness of four different child passenger safety flyers emphasizing
different aspects of child passenger safety (seat types, premature graduation, risk reduction, and age), and found that the risk-reduction frame worked best in promoting child passenger safety.

Fourth, a message frame can be made in terms of the goal implied in persuasive messages (Rothman, Bartels, Wlaschin, & Salovey, 2006). The effects of gain vs. loss-framed messages in particular have drawn much scholarly attention in the domain of health communication (e.g., Cho & Boster, 2008; O’Keefe & Jensen, 2007; Rothman et al., 2006). For example, Rothman et al. (2006) found that gain-framed messages (emphasizing the benefits of taking a certain action) were more effective when the messages served to prevent the onset of a disease, while loss-framed messages (emphasizing the costs of not taking the action) were more effective when detecting the presence of a disease was the aim.

**Research on the effects of message framing.** Extant literature on framing in various sub fields of strategic communication (advertising, health communication, political communication, etc.) has suggested that message framing influences individuals’ cognitive and evaluative attitudes (e.g., Kühne, Weber, & Sommer, 2015), behavioral intentions (e.g., Putrevu, 2010), and decision-making (e.g., Tversky and Kahneman, 1981). This section will review previous research specifically focused on the framing effects of two general framing types: (1) how different features of an object are described, especially the valence of the descriptions; and (2) how the consequences of a certain issue are presented, primarily regarding potential gains and losses related to the issue.
Effects of valence framing. According to Levin, Schneider and Gaeth (1998), in valence framing effects, “the frame casts the same critical information in either a positive or a negative light” (p. 150). Similarly, Druckman (2004) made the distinction between valence frames and emphasis frames. While emphasis frames are focused on “qualitatively different but potentially relevant considerations” (e.g., free speech vs. public safety), valence frames are defined as frames that phrase logically equivalent facts in different ways (e.g., 90% employment vs. 10% unemployment) (Chong & Druckman, 2007a).

Following this definition of valence framing, typical valence framing effects in advertising and psychology research include risky choice framing effects and attribute framing effects (Levin, Schneider, & Gaeth, 1998). Research on risky choice framing effects usually applies the prospect theory (Kahneman & Tversky, 1979). The basic theoretical idea is that individuals are more likely to perform risk-seeking behaviors when exposed to negatively-framed messages, and tend to be more risk-aversive when exposed to positively-framed messages (Kahneman & Tversky, 1979). In risky choice framing research, the valence framing is manipulated by presenting available options in a hypothetical scenario in either a positive (e.g., life saving) or negative way (e.g., life losing, death). Study findings revealed that negative framing led to stronger preferences for risky options when individuals were faced with options with different risk levels (Schneider, 1997).

A classical example is the “Asian disease problem” tested in Tversky and Kahneman’s (1981) study, which reported that more people were willing to choose a
risky option, when deciding between losing two thirds of lives, and one third of chance of losing no lives and two thirds of losing all the lives (negative framing condition). However, the opposite was found when people were asked to choose between saving one third of lives, and one third of chance of saving all lives and two thirds of saving no lives (positive framing condition).

Over time, research on valence framing has expanded its scope from the original risky choice situations to other persuasion scenarios irrelevant to risk perceptions, with the simplest case being attribute framing. Attribute framing effects occur when the descriptive valence of a certain characteristic of an object influences individuals’ evaluation of the object (Levin, Schneider, & Gaeth, 1998). Most studies in this area have confirmed that a positive (vs. negative) attribute frame leads to more positive (vs. negative) attitudes toward the object (e.g., Levin & Gaeth, 1988). For example, Levin, Jasper, Mittelstaedt, and Gaeth (1993) found that consumers had more favorable evaluations of automobiles when the information of country of origin was presented as “% American workers employed” vs. “% non-American workers employed.” Also, Levin and Gaeth (1988) offered a theoretical explanation for attribute framing effects. They argued that a positive frame stimulates positive associations in memory, focuses one’s attention to positive aspects in evaluations, and thus leads to positive judgments, while the opposite occurs with respect to a negative frame (Levin & Gaeth, 1988).

In addition, de Vreese and Boomgaarden (2003) broadened the concept of valence framing and introduced it into the domain of political communication. Specifically, they contended that some frames were “inherently valenced” in a way that “implicitly carries
positive and/or negative elements.” (p. 363) Therefore, valence framing effects are applicable not only to ways of describing a single piece of logically identical information, but also to the accentuations placed on the presenting an issue, reflected by a comprehensive set of elements in the description of the issue, such as lexical characteristics, tones, exemplars, etc.

With the expanded conceptualization of valence framing, this line of research usually defines positive or negative frames based on specific issues. Similar to attribute framing effects, a general finding is that individuals tend to make valence-consistent evaluations, such that a positively-framed message results in more positive evaluation of the issue of judgment (e.g., de Vreese & Boomgaarden, 2003; Schuck & de Vreese, 2006). For instance, in de Vreese and Boomgaarden’s (2003) study, participants exposed to positively-framed news about the EU summit, which described the EU as a necessary step toward peace and prosperity, expressed more support for the EU and the enlargement of the EU, than those exposed to negatively-framed news about the EU summit, which emphasized the EU’s failure to reach agreements.

**Effects of goal framing.** Goal frames are different from the abovementioned valence frames in two ways. First, while valence frames usually fall under a single category of either positive or negative, goal frames can be manipulated in two ways: expected outcomes (desirable vs. undesirable) and action taken (compliance vs. noncompliance) (Rothman, & Salovey, 1997). Second, goal frames are often aimed at achieving the same outcome, such as improving product attitudes, promoting a healthy behavior, etc. (Levin, Schneider, & Gaeth, 1998). However, valence frames of descriptive
features of an issue are usually linked to distinctively different persuasive outcomes, either increasing or reducing evaluations.

Prior research on framing effects of implied goals has primarily focused on the effects of gain vs. loss frames, and promotion vs. prevention frames. In general, gain and loss frames differ in terms of desirability of the end state. A gain frame emphasizes benefits related to compliance with the message’s recommendations, while a loss frame highlights costs associated with noncompliance (Rothman & Salovey, 1997).

Previous research comparing the effects of gain-framed and loss-framed messages (e.g., Krishnamurthy, Carter, & Blair, 2001; Meyerowitz & Chaiken, 1987) has suggested that goal framing effects are contingent upon several moderating factors, including the context of persuasion (e.g., Salovey, Schneider, & Apanovitch, 2002), and individual-level variables like involvement (e.g., Maheswaran & Meyers-Levy, 1990), need for cognition (e.g., Wegener, Petty, & Klein, 1994), self-efficacy (e.g., Wilson, Wallston, & King, 1990), and subjective product knowledge (e.g., Kim & Park, 2010).

For instance, based on the elaboration likelihood model (Petty & Cacioppo, 1986), Maheswaran and Meyers-Levy (1990) argued that the effectiveness of gain and loss frames would be dependent on individuals’ motivation to process information. When information is systematically processed through the central route, individuals would pay more attention to loss-framed messages, whereas when information is processed through the peripheral route, gain-framed messages would receive greater attention. In the domain of health communication, they found that loss-framed messages were more persuasive
when personal involvement with the issue was high, while gain-framed messages were more effective when issue involvement was low.

Building upon the basic gain-loss division based on hedonic end states in previous framing effect studies, several scholars further specified four types of goal frames: a gain frame on desirable outcomes attained by compliance; a non-loss frame on undesirable outcomes avoided by compliance, a non-gain frame on desirable outcomes foregone by noncompliance, and a loss frame on losses suffered from noncompliance (Levin et al., 1998; Rothman & Salovey, 1997; Lee & Aaker, 2004). Levin et al. (1998) pointed out that, although four different goal frames could be construed, most studies on goal framing effects compared the frames with the largest contrasts, that is, gain versus loss frames. Relatively, the non-gain and non-loss frames have been under-examined. Therefore, such subdivision could offer more variation in goal framing, and provide new opportunities to further examine effects of different pairs of frames, such as gain versus non-loss frames, and loss versus non-gain frames (Levin et al., 1998).

The conceptualization of gain, non-loss, non-gain, and loss frames ties in with the regulatory focus theory (Higgins, 1997), which distinguishes a promotion focus of pursuing gains and avoiding non-gains from a prevention focus of avoiding losses and pursuing non-losses. Within the regulatory focus framework, some recent studies converted gain vs. loss goal frames into promotion vs. prevention frames, based on regulatory concerns, goal pursuit strategies, or expected outcomes (Cesario, Corker, & Jelinek, 2013). A promotion frame focuses on growth needs and eager strategy, presenting gains and non-gains, while a prevention frame pertains to safety needs and
vigilance strategy, describing losses and non-losses (e.g., Cesario, Corker, & Jelinek, 2013; Lee & Aaker, 2004).

Like gain-loss framing effects, promotion-prevention framing could lead to different persuasive outcomes, depending on contextual and individual factors, such as individuals’ regulatory focus (e.g., Kim, 2006; Salovey, Schneider, & Apanovitch, 2002), self views (Aaker & Lee, 2001), temporal distance of purchase (Mogilner, Aaker, & Pennington, 2008), and product type (Micu & Chowdhury, 2010). Concerning individuals’ regulatory focus, it has been found that a message is more (vs. less) persuasive when the regulatory focus of its frame is congruent (vs. incongruent) with individuals’ regulatory focus. For example, Kim (2006) found that promotion-primed participants showed more negative attitude toward smoking and lower intention to smoke when exposed to a promotion-framed anti-smoking ad (emphasizing gains), whereas prevention-primed participants were more strongly persuaded by a prevention-framed ad (emphasizing non-losses).

Despite the growing body of research on goal framing effects, only very limited research has looked into the effects of all four types of goal frames and even less research examined the role of individuals’ regulatory focus (e.g., Lee & Aaker, 2004; Zhao & Pechmann, 2007). For example, Lee and Aaker (2004) investigated four goal frames of gain, non-gain, loss, and non-loss. Nevertheless, regulatory focus of the message frames was introduced as a moderator of gain-loss framing, and their study was aimed at comparing the effectiveness of gain-framed versus loss-framed messages (Lee & Aaker, 2004).
Also, a large number of studies on goal framing effects operationalized promotion-frames as gain frames, and prevention-frames as non-loss frames (e.g., Cesario, Grant, & Higgins, 2004; Mogilner, Aaker, & Pennington, 2008). As a consequence, further investigation is needed to test whether the results of promotion-prevention framing effect and the moderating role of individuals’ regulatory focus in particular, would still hold true when the consequences of an issue are framed as non-gains or losses.

In the current study, the distinction between a promotion and prevention frame is based on general regulatory concerns. Specifically, a promotion-framed message involves claims about a growth concern, including both the presence and absence of the desirable outcome, while a prevention-framed message contains a safety concern with statements of both presence and absence of the undesirable outcome. In addition, the research seeks to explore the interacting effect of regulatory focus as a nature of message frames and regulatory focus as a psychological trait of individuals. Specifically, it delves into how the fit between the regulatory focus of message frames and that of message receivers influences the persuasiveness of a message. Drawing upon the regulatory focus theory, the mechanism is explained in the following section.

**Regulatory Focus Theory and Effects of Regulatory Fit**

**Regulatory focus theory.** The regulatory focus theory posits two regulatory focus orientations: promotion-focus vs. prevention focus (Higgins, 1997). Facilitated by a salient nurturance need, people with a promotion focus tend to regulate their attention, perception, attitudes, and behaviors toward approaching gains and avoiding non-gains.
Alternatively, people with a prevention focus are more prone to have a salient security need, and their responses are guided by approaching non-losses and avoiding losses. As a result, promotion-focused people are more sensitive to the presence and absence of positive outcomes, while prevention-focused people have greater sensitivity to the presence and absence of negative outcomes.

Noticeably, this self-regulatory goal system is different from the hedonic motivation of approach versus avoidance, which suggests that people tend to approach pleasure and avoid pain (e.g., Gray, 1982). Either promotion or prevention-focused people have the desire to strive for positive outcomes and to avoid negative outcomes. They may both take approach or avoidance strategies, but are motivated by different goals. For example, a promotion-focused person may take an approach strategy of studying hard to obtain a good grade on an exam, while a prevention-focused person may take the same approach strategy of studying hard, but to avoid failing the exam. The difference in goals between these two motivational orientations lies in the subjective focus on gain versus loss, which is dependent on whether one sets a desirable or undesirable end state as his/her reference point (Higgins, 1998).

Past studies have indicated that regulatory foci tend to guide individuals’ information processing and decision-making, with distinctive motivational orientations leading to differences in information processing styles (e.g., Zhu & Meyers-Levy, 2007), selection and use of information in judgment (e.g., Yoon, Sarial-Abi, & Gürhan-Canli, 2012), and purchasing behaviors (e.g., Sengupta & Zhou, 2007). For instance, promotion-focused (vs. prevention-focused) people are more likely to engage in relational
processing (vs. item-specific processing) (Zhu & Meyers-Levy, 2007), rely on affect (vs. reasoning) to make judgment (Pham & Avnet, 2004), be motivated by positive (vs. negative) role models (Lockwood, Jordan, & Kunda, 2002), attend to imagery ads (vs. analytical ads) (Roy & Phau, 2014), and make impulsive purchases (Sengupta & Zhou, 2007).

**Regulatory fit and effects of regulatory fit on persuasion.** Grounded in the regulatory focus theory, regulatory fit refers to increased motivational intensity that results from the match between one’s goal orientation and the manner in which a person pursues a goal. Examples include when a promotion-oriented person uses eager strategy to achieve a goal, or when a prevention-oriented person employs vigilance strategy (Aaker & Lee, 2006; Higgins, 2002).

Regulatory fit can not only predict goal-related behaviors, but also affect the effectiveness of a persuasive message. According to Lee and Higgins (2009), people may experience regulatory fit in three situations: (1) when they adopt goal pursuit strategies that sustain their regulatory orientations; (2) when they process information that is congruent with their regulatory orientations; and (3) when different elements in a message match their regulatory orientations. Thus, one way of manipulating regulatory fit is message framing, that is, by leveraging the outcomes, concerns, goal pursuit strategies to which people with different regulatory orientations are sensitive (e.g., Aaker & Lee, 2006; Cesario, Grant, & Higgins, 2004; Lin & Shen, 2012).

When a person experiences regulatory fit, he/she tends to have more intense reactions to whatever the person is evaluating at the moment (Aaker & Lee, 2006; Lee &
Higgins, 2009). According to Lee and Higgins (2009), such regulatory fit effects can be explained by a general state of “feeling right.” Specifically, regulatory fit leads to an “it-just-feels-right” experience, and this “feeling right” experience can be attributed to other judgmental tasks. As a result, people may feel right about the arguments in the message, and thus more likely to be persuaded by it. Also, they may feel right about their own reactions to the message, leading to intensified attitudes, such that positive attitudes become more positive, and negative attitudes become more negative. Several studies tested the proposition that regulatory fit effects are due to the misattribution of “feeling right,” rather than rational reasoning, and found that regulatory fit effects were reduced, or even disappeared when individuals were not motivated to process information (e.g., Wang & Lee, 2006), or when individuals were made aware of the true source of feeling right (e.g., Cesario, Grant, & Higgins, 2004).

Substantial research has demonstrated the persuasive power of regulatory fit in intensifying evaluative judgments and behavioral intentions. Prior research has suggested that individuals are more likely to be persuaded when they are exposed to information that is consistent with their regulatory focus (e.g., Cesario, Grant, & Higgins, 2004; Lin & Shen, 2012; Zhao & Pechmann, 2007). Specifically, promotion-focused individuals pay more attention to and are more susceptible to promotion-related information that focuses people’s attention on gains, achievement, and incentives, while prevention-focused individuals are more responsive to prevention-related information that motivates people to avoid hazards and maintain security. For example, Werth and Förster (2007) showed that people with a promotion focus had more positive attitude toward a product
when exposed to product information depicting comfort versus safety, and the opposite was found among people with a prevention focus.

Moreover, the effects of regulatory fit are not limited to the target at hand, but can be extended to other incidental objects (e.g., Hong & Lee, 2008). For example, Hong and Lee (2008) manipulated regulatory fit by asking participants to list their current goals and possible goal pursuit strategies, and then measured participants’ intention to resist a temptation of unhealthy food as the dependent variable. They found that regulatory fit facilitated self-control intention, but in this case the regulatory fit manipulation was not related to the judgmental task. This result shows that regulatory fit can affect attitudinal and behavioral responses to a target unrelated to the situation where regulatory fit occurs.

Of note, as pointed out by Lee and Higgins (2009), regulatory fit would likely serve as a magnifier, rather than an enhancer, of attitudes. While a large number of studies are focused on the effects of regulatory fit on increasing positive attitudes, probably because this corresponds more with the purpose of persuasion activities, only a few examined how regulatory fit strengthens negative responses (e.g., Aaker & Lee, 2001). Aaker and Lee’s (2001) study provides some insight into this aspect. They found that when participants were exposed to weak arguments, in which less benefits were associated with product attributes, their attitudes were more negative in the fit than in the non-fit condition.

In the context of consumers’ personal information disclosure online, Gabisch and Milne (2013) looked into self-disclosure on the web, and their findings partially supported the existence of regulatory fit effects. Their study indicated that security cues
were more effective than reward cues in encouraging prevention-focused consumers to disclose their personal information, but reward cues did not enhance promotion-focused consumers’ willingness to disclose information (Gabisch & Milne, 2013). They reasoned that in the context of consumers’ self-disclosure, privacy risks are highly salient, so that even promotion-focused people would likely care about security cues.

The context of Gabisch and Milne’s (2013) study bears similarities with OBA, both concerning privacy issues in the online environment. However, privacy risks do not always outweigh benefits in the minds of consumers in the context of OBA. Previous research has shown that consumers usually get into a dilemma of perceived usefulness (promotion-focused) and perceived privacy concerns (prevention-focused) when faced with OBA (Ur et al., 2012). It is assumed that the benefits and risks of OBA are of similar salience to consumers, so that consumers would not likely have a clear and obvious preference for promotion-focused cues or prevention-focused cues. Therefore, it is likely that regulatory fit could magnify the effects of OBA educational messages with different valences, boosting both positive and negative responses to the message. In the following chapter, this study’s hypotheses are formally presented based on the theories and relevant previous research reviewed in this chapter.
Background on OBA Educational Message Framing

Before posing hypotheses, in order to compare the frames used by various interest holders in OBA and to use the information for hypotheses development, OBA educational messages provided by various stakeholders in the online advertising market were analyzed. Included in the analysis were consumer education information provided by major online advertising companies (Google, Yahoo, AOL, Microsoft, Facebook, Twitter, and Apple), ad industry associations (DAA and NAI), the FTC, consumer advocacy groups (Center for Digital Democracy, Consumer Action, Consumer Federation of America, Privacy Rights Clearinghouse, Future of Privacy Forum), and public research groups (World Privacy Forum, Center for Democracy and Technology, and World Privacy Forum).

The selected digital advertising companies are leading digital ad sellers. Google, Facebook, Microsoft, Yahoo and AOL generated 61% of the total US digital ad revenue in 2014 (Olmstead & Lu, 2015), and Facebook (24% of display ad revenue), Google (14%), Yahoo (6%), AOL (4%), and Twitter (4%) were the most dominant players in the online display advertising market in 2014 (eMarketer, 2015). Apple is also included in the analysis, since it was among the top five companies in terms of mobile display ad revenue in 2014 (eMarketer, 2015). With the growth of OBA across devices, OBA educational messages in the mobile environment are required to comply with the DAA’s self-regulatory principles as well. Although this study is mainly focused on OBA educational messages on webpages, taking those on mobile devices into consideration
would provide valuable insights to a comprehensive investigation of existing frames of OBA educational messages. More importantly, all of the chosen companies have their own OBA consumer education pages.

NAI and DAA are the only two industry organizations that offer opt-out tools on their consumer choice pages, and thus chosen as representatives of industry-wide educational message providers in this study. The opt-out pages of NAI and DAA are listed as the first two results when “online behavioral advertising opt out” is searched on Google and Yahoo.

Also, the aforementioned consumer advocates and research groups are selected, because of their constant attention to consumer protection issues regarding OBA. They jointly submitted comments to the FTC’s Town Hall meeting on OBA (“Behavioral Advertising: Tracking, Targeting, and Technology”) in 2007, and representatives from the World Privacy Forum and Center for Democracy and Technology attended the roundtable discussion in the FTC’s Town Hall meeting.

It is suggested by the DAA’s (2009) education principle that advertisers’ educational materials regarding OBA should include information about the mechanism of OBA and available choices for consumers. Consistent with this requirement, OBA educational messages provided by digital advertising companies and ad associations in practice usually consist of a description of how OBA works and an explanation of what opting out of OBA means to consumers. To identify types of frames used in OBA educational messages presented by different sources, two aspects of OBA educational messages, the definition of OBA and the consequences of opting-out, were searched and
compared among advertisers’ opt-out web pages, *FTC Staff Report: Self-Regulatory Principles For Online Behavioral Advertising* (FTC, 2009), as well as the fact sheets, tip sheets, and public reports published on the websites of consumer advocacy groups and public research groups.

**Framing of definition of OBA.** In terms of what OBA is and how it works, a majority of advertising companies and industry associations tend to label OBA as “interest-based advertising,” and highlights the benefits of OBA to consumers, such as being informative and relevant, and supporting free content online. For example, the DAA’s (n.d.) consumer choice webpage states that “some of the ads you receive on web pages are customized based on predictions about your interests generated from your visits to different Web sites. Such online advertising helps support the free content, products, and services you get online.”

Individual companies’ definitions of OBA are even simpler than the DAA’s. Apple (n.d.) calls its OBA system “iAd” and briefly explains to consumers on the opt-out page that “to give you the best advertising experience, iAd provides ads based on your interests.” Yahoo not only uses the term “interest-based advertising” but also names its opt-out tool as “Ad Interest Manager.” While the beneficial results of OBA are stressed in advertising companies’ educational messages, the practice of data tracking, which is an important part of OBA, is described in a vague manner. Instead of directly mentioning the practice of collecting and analyzing consumer data for the purpose of behavioral advertising, advertising companies state that these “interest-based ads” are *based on* consumers’ online activities. For example, Twitter’s (n.d.) description of OBA states,
“we work with ads partners to bring you more useful and interesting advertising content. We may do this based on information that ad partners share with us.” Facebook (n.d.) claims that “online interest-based advertising means deciding which ads you might like to see based on your activity on websites and apps off of Facebook.” The phrase “based on” is not likely to present a clear explanation of where advertisers get consumer data and how they use the data to build consumer profiles.

In contrast, legal authorities and consumer advocacy groups explicitly use the word “online behavioral advertising” in their educational messages, and use value-neutral words like “tailored advertising” to describe OBA. Also, their definitions of OBA include a clear description of the practice of data tracking and the benefits of OBA to advertisers rather than to consumers, like enabling advertisers to deliver ads to users whom are most likely to be influenced by the ads. For instance, FTC (2009) defines OBA as a practice that “involves the tracking of consumers’ online activities over time in order to deliver tailored advertising” and further describes that this practice “is typically invisible to consumers,” and “allows businesses to align their ads more closely to the inferred interests of their audience.”

Moreover, instead of saying that OBA is based on consumer interests, consumer groups describe that it is based on an individual’s “behavioral record.” The fact sheets provided by the Consumer Federation of America (n.d.), World Privacy Forum (n.d.), and Privacy Rights Clearinghouse (n.d.) describe OBA as a two-step process: behavioral tracking and behavioral targeting. Specifically, “Behavioral tracking is the practice of collecting and compiling a record of individual consumers’ activities, interests,
preferences, and/or communications over time. Behavioral targeting is when behavioral tracking is used as a basis to serve advertisements and/or otherwise market goods or services to a consumer based on his or her behavioral record” (World Privacy Forum, n.d.).

Of note, data tracking and consumer profiling by marketers is explicitly described when consumer advocates and public research groups explain OBA to consumers. Words like “routinely monitoring” (Privacy Rights Clearinghouse, n.d.), “surreptitious tracking and targeting” (Public Information Research, 2009), “consumer data trade” (Public Information Research, 2009), “investigation and inference” into consumers (Center for Digital Democracy, n.d.), and “data mining” (Consumer Action, 2008) are used in the definition of OBA from consumer advocate groups.

**Consequences of opt-out.** Regarding the consequences of opt-out, advertising companies tend to describe opt-out choices in a more negative tone, either by pointing out opt-out would result in loss of benefits of receiving interest-based ads, or by suggesting opt-out would not prevent a negative outcome (e.g., data collection). For instance, the opt-out pages of Facebook (n.d.), Google (n.d.), and Apple (n.d.) state that consumers “will still see the same number of ads, but less relevant to them.” In a similar vein, Yahoo (n.d.) underlines the disadvantages of opting out, such that after opting out of OBA consumers “will also be opting out of other Yahoo services such as editing your interests online, receiving interest-based ads.”

Compared to statements by advertising companies, educational materials by consumer advocacy groups tend to include information about what ads consumers will
receive after opting out and the fact that they will get non-tracking-based online ads. For example, Consumer Action (2008) claimed on their privacy protection tip sheet (“Leave me alone: Your privacy online—and offline”) that “the network you opt out of will no longer deliver ads based on your web preferences and usage patterns.” Future of Privacy Forum (2014) provided a guide for how to opt out of OBA on mobile devices, and explained that consumers would still get ads but they should not be based on tracking consumers’ activities across different apps they use. These statements differ from advertising companies’ description of “less relevant ads,” which implies an undesirable outcome.

Concerning consumer data collection, many advertising companies emphasize that opting out does not stop all data tracking. For example, NAI (n.d.) claims that “the websites you visit may still collect information for other purposes” or “through non-cookie technologies.” Twitter (n.d.) makes it clear that opt-out only stops data tracking by third-party advertisers (“our ad partners”), but not by Twitter itself, so that “what you do on Twitter, including the messages you tweet, the people you follow, and the links you click on Twitter” will still be used to create customized ads. Similarly, Google (n.d.) claims that turning off interest-based advertising will not prohibit advertisers from tracking other types of consumer data apart from consumers’ online activities over time, such as a consumer’s general location or the current page or app the consumer is looking at.

By comparison, consumer advocates consider opt-out as a desirable move toward online privacy protection. The World Privacy Forum (n.d.) explains the consequences of
opting out of cookie tracking in a detailed manner by stating, “if you opt out of NAI tracking, it means that companies that have tracking ads at multiple web sites will no longer assemble a file of all of the places you have visited, will no longer link your web activities with you personally, and will no longer merge the web activities connected with their ads with other information about you.”

To summarize, from the examination of the existing consumer education materials regarding OBA, two important patterns emerged. First, in terms of how OBA is defined and described, positive and negative frames exist. A positive frame appears more frequently in advertising companies’ educational messages. Using the term “interest-based advertising,” a positive frame focuses on the informativeness and relevance of OBA to consumers, and deemphasizes the privacy risks of OBA. Alternatively, a negative frame of OBA educational message is often employed by the FTC, consumer groups, and public research groups. Using the terms “online behavioral advertising” and “behavioral tracking,” a negative frame incorporates descriptions of possible privacy-invasive practices by marketers in the definition of OBA.

Second, in terms of explaining the opt-out option and consequences of opt-out, gain (promotion-focused) and loss (prevention-focused) frames are identified. When describing the consequences of opt-out, most educational messages include two aspects: (1) what kind of ads consumers will receive after opting out, and (2) whether consumer data will still be tracked, traded, and analyzed. The former pertains to the availability of a potential gain, which is more common among advertising industry’s educational messages. The latter reveals the possibility of being protected from a potential loss, and is
discussed not only in a more detailed manner but also in a more encouraging tone, in the educational messages offered by consumer groups and non-profit privacy research groups.

**Hypotheses**

**Main effect of message framing.** Research on valence framing effects originally focused on the effects of whether the same information is described in a positive or negative way. This line of research has found that a positively-framed message (vs. negatively-framed message) is likely to lead to less risky decisions (e.g., Tversky and Kahneman, 1979), and more positive evaluative judgment toward the subject endorsed by the message (e.g., Levin & Gaeth, 1988). Later, several scholars expanded the concept of valence framing by looking into more complicated features of a message, including not only specific words, but also the emphasis placed on describing an issue. Their findings have further confirmed that a positively-framed message is associated with more positive attitudinal reactions toward the issue presented in the message (de Vreese and Boomgaarden, 2003).

The current study employs a broader definition of valence framing derived from de Vreese and Boomgaarden’s (2003) study. Different from traditional valence framing research, this study makes the distinction between positively-framed and negatively-framed messages based on multiple characteristics in the entire description that go beyond a single word or attribute. Also, the valence of the frames is implicitly suggested by the information given to messages receivers, rather than directly shown by using contrasting words. Therefore, the valence of message frames in this study is identified
through a variety of informational features in the OBA educational messages, including the wording used to describe OBA, the tone implied by the description of OBA, and the focuses placed on explaining OBA to consumers.

Regarding the effects of valence framing, past studies have demonstrated that when describing the same subject, a positively-framed message tends to result in more positive responses toward the subject, compared to a negatively-framed message (e.g., de Vreese and Boomgaarden, 2003). Thus, this study hypothesizes that the valence of the frames of OBA educational messages would influence consumers’ attitudinal and behavioral responses to OBA. Specifically, a positive frame of OBA educational messages, which emphasizes the informativeness of OBA and disadvantages of opt-out, will result in more positive attitude toward OBA, and lower intention to opt out, compared to a negative frame, which defines OBA in a relatively neutral tone and stresses the positive consequences of opting out. Thus, the following hypothesis is posed:

**H1:** Exposure to a positively-framed OBA educational message will lead to (a) relatively more positive attitude toward OBA, and (b) lower intention to opt out of OBA, than exposure to a negatively-framed educational message.

**Moderating role of regulatory focus fit.** Based on the goal framing literature and the regulatory focus theory, this study also proposes a moderating effect of regulatory fit. The regulatory focus theory posits a motivational distinction between a promotion focus and a prevention focus, and the literature on regulatory focus has suggested that regulatory focus not only exists as a personal trait, but can also work as message frames (Aaker & Lee, 2006). Furthermore, when the regulatory focus of an individual matches
the regulatory focus demonstrated in a message, people will experience the subjective state of regulatory fit (Higgins, 2002).

In the context of OBA educational messages, arguments regarding the opt-out option and consequences of opt-out sometimes differ in terms of regulatory focus, and regulatory fit may occur when people with a specific regulatory focus are presented with a message with the same regulatory orientation. For instance, some educational messages stress the unavailability of a potential gain (e.g., “you will no longer be able to receive informative and relevant ads”), which signifies a non-gain situation, and thus can be seen as a promotion-focused cue. Higher levels of regulatory fit could occur when promotion-focused consumers read this piece of information, due to their greater sensitivity to the absence of positive outcomes. Alternatively, some educational messages emphasize the failure to prevent an undesirable outcome (e.g., “your online behaviors will still be tracked by advertisers”), which implies a loss situation and can be viewed as a prevention-focused cue. There should be a higher level of fit between this message and prevention-focused consumers, who have greater sensitivity to presence of negative outcomes.

Furthermore, research on the effect of regulatory fit has indicated that regulatory fit functions as a magnifier of an attitudinal response, making positive reactions more positive, and negative reactions more negative (Aaker & Lee, 2001). Based upon past findings on the effects of regulatory fit, higher levels of regulatory fit would likely reinforce the effects of valence framing, increasing both the positive effect of a positive
message frame, and the negative effect of a negative message frame, on people’s attitudinal and behavioral responses to the issue presented in the message.

In this study, when a consumer receives a message with higher regulatory fit (when a promotion-focused consumer reads a promotion-focused description of the consequences of opt-out, or a prevention-focused consumer reads a message with a prevention-focused frame), the valence framing effects proposed in hypothesis 1 is likely to be intensified. Alternatively, the valence framing effects should be weaker, when there is lower fit between the regulatory focus of the educational message and the regulatory focus of individuals. Therefore, it is hypothesized:

**H2:** When the fit between individuals’ regulatory focus and the regulatory focus of the educational message is higher versus lower, the relationship between the valence of message frames and (a) consumers’ attitudes toward OBA and (b) consumers’ intention to opt out of OBA would be strengthened.
CHAPTER 4. METHOD

Pilot Study

The pilot study had three purposes: (1) to examine whether individuals’ regulatory focus can be successfully manipulated by goal priming; (2) to examine a possible confounding factor of mood; and (3) to determine the optimal manipulation check measurement for the main study. A single-factor (regulatory focus: promotion vs. prevention) between-subjects post-test-only online experiment was conducted for the pilot study.

Participants. A total of 24 undergraduate students (17 females and 7 males) recruited from the School of Journalism and Mass Communication in the University of Minnesota participated in the pilot study in exchange for extra course credits. The average age was 20.9, and 75% of the participants were White/Caucasian. The participants were randomly assigned to one of the two conditions: the promotion-focused condition and the prevention-focused condition.

Procedure. The experiment was conducted in an online environment. First, participants were presented with the consent form, which informed that their participation was voluntary and the data of the experiment would be kept confidential. It was explained to participants on the consent form that this study would inquire about their past life experiences and personality. The purpose of the study was not fully revealed to the participants, because mentioning specific regulatory focus like promotion or prevention may bias participants and prime participants of their chronic regulatory focus orientation, which could affect the effects of the regulatory focus manipulation.
After signing the consent form, participants were randomly assigned to either of
two conditions (promotion or prevention focus priming) and were asked to conduct the
first task of recalling past experiences. Participants in the promotion focus condition were
asked to take a few minutes to recall and then write a short essay about each of the
following three situations: (a) when they felt like they made progress toward being
successful in life; (b) when compared to most people they were able to get what they
wanted out of life; and (c) when they felt like they failed to make progress toward being
successful in life. Alternatively, participants in the prevention focus condition were asked
to think and write an essay about a time in the past when (a) being careful enough
avoided getting them into trouble; (b) they stopped themselves from acting in a way that
their parents would have considered objectionable; and (c) not being careful enough has
gotten them into trouble. This task served as the regulatory focus induction, and the
procedure was adopted from Higgins et al. (2001).

Next, participants were asked to fill out a questionnaire including one mood
measurement and three measures of regulatory focus. Regulatory focus was measured
multiple times to determine the manipulation check measurement that is most sensitive to
our manipulation among those used in previous studies. The measures of mood and
regulatory focus were randomized so that the order of the measures would not affect the
results. Lastly, demographic information, such as age, sex, and ethnicity, was collected.

Measures. Mood. Mood was measured by an abbreviated version of Russel and
Mehrabian’s (1977) PAD scale. There were two sets of three-item nine-point semantic
differential scales, measuring two dimensions of mood: pleasure (depressed-contented,
unhappy-happy, and annoyed-pleased) and arousal (relaxed-stimulated, calm-excited, and sluggish-frenzied). The original PAD scale measures three dimensions of mood (pleasure, arousal, and dominance) using three sets of six-item nine-point semantic differential scales. The full scale was not employed in this study mainly because it is very long, and thus may produce fatigue in the participants. Also, dominance of mood is not applicable to the situation of the current study. In addition, three out of the six original items in each scale with the highest factor loading scores in the factor analysis of the PAD scale were selected (Jun, Cho & Kwon, 2008).

*Regulatory focus.* This study used three types of regulatory focus measurement. The first one was the Regulatory Focus Composite Scale (RF-COMP) developed by Haws, Dholakia, and Bearden (2010). Participants were asked to indicate to what extent the given ten statements would apply to them, on a 7-point Likert-type scale ranging from very untrue of me to very true of me. Five items were used to measure promotion focus and included: (1) When it comes to achieving things that are important to me, I find that I don’t perform as well as I would ideally like to do (reverse-coded); (2) I feel like I have made progress toward being successful in my life; (3) when I see an opportunity for something I like, I get excited right away; (4) I frequently imagine how I will achieve my hopes and aspirations; and (5) I see myself as someone who is primarily striving to reach my “ideal self”—to fulfill my hopes, wishes, and aspirations.

The other five statements were used to measure prevention focus and included: (1) I usually obeyed rules and regulations that were established by my parents; (2) Not being careful enough has gotten me into trouble at times (reverse-coded); (3) I worry
about making mistakes; (4) I frequently think about how I can prevent failures in my life; and (5) I see myself as someone who is primarily striving to become the self I “ought” to be—fulfill my duties, responsibilities and obligations. All items were presented to participants in a randomized order.

The second measure was a single-item nine-point scale adopted from Keller (2006). Participants were asked to indicate which aspect was more important to them, when faced with conflicts between what they ought to do and what they want to do (1 = something I ought to do; 9 = something I want to do).

The third measure was a modified version of Pham and Avnet’s (2004) measurement. Three real life situations with conflicting goals were presented to participants. In each situation, participants were asked to rate the extent to which they prefer to “take a trip around the world versus pay back my loans,” “do what is right versus do whatever I want,” and “go wherever my heart takes me versus do whatever it takes for me to keep my promises” (reverse-coded) on nine-point bipolar scales.

Data analysis and results. One case was deleted in the data analysis because the participant did not follow the instructions of the first task. The experience that this participant described did not represent situations where being careful enough avoided getting him/her into trouble, and not being careful enough has gotten him/her into trouble. Therefore, the sample size was 23 in the data analysis.

Randomization check. A two-sample t-test showed that there was no significant difference in age (t(21) = -0.41, p = .68) between the promotion group (M = 21.00, SD = 2.45) and the prevention group (M = 20.67, SD = 1.41). No significant statistical
difference was found in sex ($\chi^2 (1) = 1.32, p = .25$) or ethnicity ($\chi^2 (2) = .84, p = .66$) either.

**Descriptive statistics of key variables.** The pleasure (Cronbach’s $\alpha = .92$) and arousal (Cronbach’s $\alpha = .76$) subscales of mood were found to be reliable. Thus, the pleasure and arousal scores were calculated by averaging item scores in each subscale. The mean score of pleasure ($M = 4.70, SD = 1.28$) was not significantly different from the mid-point of a nine-point scale ($t (21) = -1.11, p = .28$), indicating that, after recalling past experiences, participants’ feelings of pleasure was close to neutral. The mean score of arousal ($M = 4.03, SD = 1.07$) was significantly lower than the mid-point of a nine-point scale ($t (21) = -4.26, p < .01$), which means that participants were relatively calm after the regulatory focus induction.

Concerning the Regulatory Focus Composite Scale (RF-COMP), Cronbach’s alphas for the five promotion focus items and five prevention focus items were .86 and .51, respectively. To render a more reliable prevention focus scale, Cronbach’s $\alpha$ was recalculated after deletion of one item in the scale. The prevention scale reached highest reliability (Cronbach’s $\alpha = .81$), when the item, “I usually obeyed rules and regulations that were established by my parents,” was excluded. Therefore, this particular item was removed in the data analysis. The reason why the deleted item reduced the reliability of the prevention focus scale could be that it pertained to a chronic orientation, which is less likely to be influenced by situationally induced regulatory focus. With the new scale, the mean of the regulatory focus score measured by RF-COMP was $56$ ($SD = 1.45$).
The mean score of Keller’s (2006) regulatory focus measure was 3.52 (SD = 1.90). The reliability of Pham and Avnet’s (2004) scale was low (Cronbach’s α = .43). The Cronbach’s α increased when the second item (“do what is right versus do whatever I want”) was deleted from the scale, but still did not reach acceptable reliability (Cronbach’s α = .58). Therefore, the three items were treated as separate scores in the data analysis. The mean score was 5.30 (SD = 2.70) for the first item (“take a trip around the world versus pay back my loans”), 3.78 (SD = 1.95) for the second item, and 5.57 (SD = 2.27) for the third item (“go wherever my heart takes me versus do whatever it takes for me to keep my promises”).

Results of pilot study. The means and standard deviations of key variables in the promotion condition and prevention condition are presented in Table 1. There was no significant difference between the mean score of pleasure in the promotion group (M = 4.82; SD = .98) and mid-point of the pleasure scale (t (12) = -0.66, p = .52). The same result was found for the mean score of pleasure in the prevention group (M = 4.52; SD = 1.68) (t (8) = -0.86, p = .42). It means that both groups felt neutral in terms of the pleasure aspect of mood after the manipulation. With respect to arousal, the mean score in the promotion group (M = 4.08; SD = 1.02) was significantly less than mid-point of the arousal scale (t (12) = -3.26, p < .01). The arousal score of the prevention group (M = 3.96; SD = 1.20) was significantly less than the mid-point as well (t (8) = -2.60, p = .03), which indicates that participants in both groups were calm after the manipulation. Two two-sample t-tests were conducted on the pleasure and arousal dimensions of mood. No
significant statistical difference was found between the two groups in terms of pleasure ($t(12) = -0.48, p = .64$) and arousal ($t(15) = -0.23, p = .82$).

### TABLE 1
**Descriptive Statistics of Key Variables between Conditions in Pilot Study**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Promotion-primed condition</th>
<th>Prevention-primed condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pleasure</strong></td>
<td>4.82 (0.98)</td>
<td>4.52 (1.68)</td>
</tr>
<tr>
<td><strong>Arousal</strong></td>
<td>4.08 (1.02)</td>
<td>3.96 (1.20)</td>
</tr>
<tr>
<td><strong>Regulatory focus</strong> (RF-COMP scale)</td>
<td>0.92 (1.71)*</td>
<td>-0.009 (0.65)*</td>
</tr>
<tr>
<td><strong>Regulatory focus</strong> (Keller’s (2006) scale)</td>
<td>3.36 (1.78)</td>
<td>3.78 (2.17)</td>
</tr>
<tr>
<td><strong>Regulatory focus</strong> (Pham and Avnet’s (2004) scale, item 1)</td>
<td>4.93 (2.81)</td>
<td>5.89 (2.57)</td>
</tr>
<tr>
<td><strong>Regulatory focus</strong> (Pham and Avnet’s (2004) scale, item 2)</td>
<td>3.57 (1.74)</td>
<td>4.11 (2.32)</td>
</tr>
<tr>
<td><strong>Regulatory focus</strong> (Pham and Avnet’s (2004) scale, item 3)</td>
<td>5.86 (2.07)</td>
<td>5.11 (2.62)</td>
</tr>
</tbody>
</table>

*Notes: Standard deviations are in parentheses.  
$^* p < .05$, significant difference between conditions

A two-sample t-test was conducted between the promotion-primed group and the prevention-primed group on the regulatory focus scores generated by the Regulatory Focus Composite Scale. Results showed that participants who received the promotion focus manipulation ($M = .92; SD = 1.71$) were more oriented toward a promotion focus
than those who received the prevention focus manipulation (M = -0.009; SD = .65), and that the difference in regulatory focus was statistically significant (t (18) = -1.84, p = .04).

Similarly, a two-sample t-test was conducted on Keller’s (2006) measure of regulatory focus. The promotion focus group (M = 3.36; SD = 1.78) did not significantly differ from the prevention focus group (M = 3.78; SD = 2.17) in terms of the regulatory focus score from Keller’s (2006) scale (t (15) = .49, p = .68). Additionally, three t-tests demonstrated that there was no between-group difference for the first item (M_{promotion} = 4.93; SD_{promotion} = 2.81; M_{prevention} = 5.89; SD_{prevention} = 2.57; t (18) = .84, p = .41), the second item (M_{promotion} = 3.57; SD_{promotion} = 1.74; M_{prevention} = 4.11; SD_{prevention} = 2.32; t (14) = .60, p = .56), or the third item (M_{promotion} = 5.86; SD_{promotion} = 2.07; M_{prevention} = 5.11; SD_{prevention} = 2.62; t (14) = .72, p = .48) in Pham and Avnet’s (2004) measure of regulatory focus.

**Conclusion.** The pilot study results showed that situational regulatory focus manipulation could make a difference in individuals’ regulatory focus. Secondly, neither the pleasure nor the arousal dimension of mood is likely to be affected by the manipulation of regulatory focus. As a result, if regulatory focus is found to influence consumers’ responses to OBA in the main study, the effect cannot be attributed to mood. More importantly, among the three measures of regulatory focus, the Regulatory Focus Composite Scale appears to be more reliable and more sensitive to our manipulation, compared to the other two measures. Thus, considering reliability and sensitivity, the Regulatory Focus Composite Scale is determined to be more suitable to be used as the manipulation check question in the main study.
Main Study

An online scenario-based experiment was conducted for the main study. Since consumers usually encounter OBA educational messages in the online environment in real life, an online experiment is aimed to increase the external validity of the study. The experiment had a $2 \times 2 \times 2$ between-subjects design. Message frames were manipulated through four versions of OBA educational messages. Consumers’ regulatory focus was manipulated by goal priming as illustrated in the pilot study.

Participants. Participants were 172 undergraduate students recruited from the School of Journalism and Mass Communication at the University of Minnesota, Twin Cities, who participated in this study in exchange for extra course credits. A student sample was used for convenience and economic purposes. In the recruitment process, it was required that participants of the pilot study were not eligible for the main study, in case that they may realize the true purpose of the study when filling out the same questionnaire for the second time. Participants were randomly assigned to the eight conditions.

Stimuli. Four versions of educational messages (a positive promotion-focused message, a positive prevention-focused message, a negative promotion-focused message, and a negative prevention-focused message) were used as stimuli. The wording of the stimuli was derived from the sources analyzed in the hypotheses background information
section: Major digital advertising companies (Google, Yahoo, AOL, Microsoft, Facebook, Twitter, and Apple) and industry associations’ (DAA and NAI) consumer choice pages, FTC’s self-regulatory principles, and consumer education pages from consumer advocacy groups (Center for Digital Democracy, Consumer Action, Consumer Federation of America, Privacy Rights Clearinghouse, and Future of Privacy Forum) and public research groups (World Privacy Forum, Center for Democracy and Technology, and World Privacy Forum).

The overall design of the educational messages mimicked the NAI and DAA consumer choice pages, and stayed the same across conditions. Each educational message had three sections: (1) definition of OBA and an example (“About online behavioral advertising” for the negative frame condition and “About online interest-based advertising” for the positive frame condition); (2) opt-out choice (“It’s up to you,” a short message to notify consumers that they can opt out if they want to); and (3) description of the consequences of opting out (“What you can expect after opting out”).

Positive/negative frames were manipulated through the definition of OBA in the first section of the educational message. A positive frame labeled OBA as “online interest-based advertising” and featured the usefulness of OBA, while a negative frame used the name “online behavioral advertising” and emphasized consumer tracking in the practice of OBA. Promotion/prevention-focused frames were manipulated through differentiating the consequences of opting out in the third section of the educational message. In the promotion-focused framing condition, what kind of ads consumers would
get after opting out was described. In the prevention-focused framing condition, the security of consumer data after opting out was presented.

In the positive-promotion-focused framing condition, titled with “About interest-based advertising,” OBA was described as “some websites work with ad partners to bring consumers more useful and interesting advertising content. As a result, some of the ads you receive on web pages are customized based on your interests generated from your visits to different websites. Such online advertising helps support the free content, products and services you get online.”

The example that followed the definition read that, “for example, you may be looking for a present for a friend (a coffee maker, for instance) and search a department store website and click on a few different coffee makers in the appliances section. After a while you give up your search and decide to visit an online newspaper site to read an article. Once there, you may find that you are then presented with ads for different coffee makers.” The example was same across conditions.

The second section began with the title “It’s up to you,” and continued to state that “by clicking ‘I’d like to opt out’ on this page, you can opt out from the collection of Web viewing data for online interest-based advertising.”

In the third section, the consequences of opting out, was presented as the following: “(1) you will still see the same number of ads as before, but they are less relevant to you, because they aren’t based on your interests; (2) you will no longer be able to receive interest-based ads, when you browse online. Instead, you will receive random online ads; and (3) opting out of online interest-based advertising means you will also be
opting out of other personalized services provided by advertisers. For example, you will no longer be able to edit your interests online.”

In the positive-prevention-focused framing condition, the first two sections remained the same, but the consequences of opting out were described as “(1) opting out of online interest-based advertising limits the ways advertisers collect information about your browsing activities. However, opting out does not stop data tracking of advertisers completely. Advertisers may collect your information through non-cookie technologies; (2) your information will not be used for advertising purposes, but may be used for other purposes other than delivering advertising.”

In the negative-promotion-focused condition, OBA was labeled as “online behavioral advertising” and the detailed description of OBA stated, “online behavioral advertising involves the tracking of consumers’ online activities in order to deliver tailored advertising. The practice, which is typically invisible to consumers, allows businesses to align their ads more closely to the inferred interests of their audience.”

The second section informed participants that “by clicking ‘I’d like to opt out’ on this page, you can opt out from the collection of Web viewing data for online behavioral advertising.” And the consequences of opting out of OBA were described in the same way as in the positive-promotion-focused condition.

In the negative-prevention-focused framing condition, the definition of OBA and the notification of “It’s up to you” were the same as in the negative-promotion-focused framing condition, and the consequences of opting out were described in the same way as in the positive-prevention-focused framing condition.
**Procedure.** Participants were first presented with the consent form, which informed them of the voluntary nature of the participation and confidentiality of data. After signing the consent form, participants were shown general instructions explaining that this study was focused on consumer responses to online advertising. OBA was not directly mentioned, in order to avoid confusion among participants, since in the positive framing conditions OBA would be presented as “online interest-based advertising” throughout the questionnaire.

The first task was recalling past experiences, serving as the regulatory focus priming manipulation. The procedure was the same as in the pilot study. Participants were randomly assigned to the promotion-prime condition and the prevention-prime condition, and asked to think and write about three promotion-related or prevention-related situations for a few minutes. The manipulation check measurement and the measurement of mood were administered right after the goal priming.

Moving on to the second task of reading an educational message, every participant was exposed to one of the four versions of the above-mentioned educational message, and asked to take their time to read the materials carefully. This was followed by indicating their intention to opt out of OBA (“online-interest-based advertising” in the positive framing conditions) and their attitudes toward OBA (“online-interest-based advertising” in the positive framing conditions).

The last section of the questionnaire measured control variables (past experience with OBA, knowledge about OBA, privacy concerns of OBA, and Internet use skills) and demographics (age, sex, and ethnicity). This section started with the note that “You are
almost done! There are just a few more questions I would like to ask you for classification purposes.” Then, a short description of OBA was provided to participants before the questions. As some of the questions in this section inquired about participants’ experience and perception of OBA, it was essential that participants should have clear and consistent understanding of OBA before answering all the questions. The description read that, “in this study, online behavioral advertisements refer to online banner ads that re-show the specific products/services you have recently clicked on and viewed online or features the specific brands of online stores you have recently visited. For example, you visited Adidas’ online store to buy a new pair of sneakers. You clicked on a few items, but didn’t buy anything. Later, you went to the Star Tribune website to read about the Minnesota Vikings team. On top of the website, there was a banner ad showing the picture of the pair of shoes you just browsed on Adidas’ website.”

Measures. Attitude toward OBA. Attitude toward OBA was measured by eight seven-point semantic differential scale questions. The measurement takes into account affective (“bad/good”, “unpleasant/pleasant”, and “dislikable-likable”) and cognitive components (“dishonest/honest”, “worthless-valuable”, “unnecessary-necessary”, “insincere-sincere”, and “dangerous-safe”) of attitude (Pollay & Mittal, 1993; Sandage & Leckenby, 1980). The affective and cognitive items were placed in a mixed manner on the questionnaire (Cronbach’s α = .89).

Intention to opt out. Intention to opt out was measured by the question “How likely is it for you to opt out of online interest-based advertising (online behavioral
advertising)?” on a seven-point Likert scale (1 = Extremely unlikely; 7 = Extremely likely) (Block & Keller, 1995).

Control variables. Mood, past experience with OBA, knowledge about OBA, privacy concerns about OBA, and Internet use skills were controlled in the study. Mood was measured using the same scale as in the pilot study. With an abbreviated version of the PAD scale (Russell & Mehrabian, 1977), two dimensions of mood (pleasure and arousal) were measured by six nine-point semantic differential scales. Although the pilot study showed that mood was not affected by the manipulation of individuals’ regulatory focus priming, mood was still controlled in the main study to rule out any potential effects on the dependent variables.

Past experience with OBA was measured by two questions: “Have you ever seen online behavioral ads when browsing the Internet?” (1 = Yes; 0 = No); “In the past week, how frequently did you see online behavioral ads when browsing the Internet?” (1 = Never; 2 = About once or twice; 3 = Several times; 4 = Once almost everyday; 5 = Several times a day).

In addition, seven true-or-false questions were used to measure participants’ knowledge of OBA, with four of them being true and three being false. Participants were allowed to choose “I don’t know,” besides “True” and “False.” The items included: (1) Advertisements appearing on a website are same for everyone visiting the site at a given time (False); (2) Consumers have the ability to choose whether to allow marketers to collect and use their Internet use data (such as search terms, visited sites, online purchases) for online behavioral advertising purposes (True); (3) Companies can gather
and store information about consumers’ Internet use (such as search terms, visited sites, online purchases) only when they obtain consent from consumers (False); (4) Online behavioral advertising is required by law to provide a notice to consumers disclosing and informing consumers about data collection and use of consumers’ website use data (True); (5) Websites can transfer data about consumers’ Internet use to advertisers for online behavioral advertising purposes (True); (6) In most cases of online behavioral advertising, the data collected is not personally identifiable information (personally identifiable information is consumer’s name, physical address, or similar identifier that could be used to identify the consumer in the offline world) (True); and (7) If you see an online behavioral ad displayed on a certain website, it means that this website is collecting information about your Internet use (False) (Kim, 2013; Smit, Van Noort, & Voorveld, 2014). A score for knowledge about OBA was calculated by assessing how many questions were answered right for each participant.

Privacy concerns regarding OBA were measured by asking participants the extent to which they agree with the following five statements (Cronbach’s $\alpha = .91$) on a seven-point Likert scale (1 = Strongly disagree; 7 = Strongly agree): (1) I feel uncomfortable because my information seems to be shared among marketers without my permission; (2) I am concerned about misuse of my personal information; (3) I feel fear that my information may not be safe while stored; (4) I believe that personal information is often misused; and (5) I think companies share consumers’ personal information without permission (Baek & Morimoto, 2012).
Internet use skills were measured through self-evaluation. Participants were asked to assess how skilled they were in terms of Internet use on a five-point Likert scale (1 = Not at all skilled; 5 = Expert) (Hargittai, 2005). Besides, experience specifically with managing cookies was measured, because cleaning cookies is usually related with the intention to opt out of OBA, and could directly result in opting out of OBA (Ur et al., 2012). Specifically, participants were asked whether they had used any software that automatically deletes cookies, and whether they had cleaned cookies by themselves (1 = Yes; 2 = No; 3 = I’m not sure) (McDonald & Cranor, 2009).

**Regulatory focus priming manipulation check measure.** Manipulation check for regulatory focus priming was conducted using the Regulatory Focus Composite Scale (RF-COMP), which was proved to be more compatible with the purpose of this study in the pilot study. The item that “I usually obeyed rules and regulations that were established by my parents” from the original scale was excluded, because it lowered the reliability score of the prevention scale in the pilot study. Thus, the prevention scale consisted of four items: (1) Not being careful enough has gotten me into trouble at times (reverse-coded); (2) I worry about making mistakes; (3) I frequently think about how I can prevent failures in my life; and (4) I see myself as someone who is primarily striving to become the self I “ought” to be—fulfill my duties, responsibilities and obligations (Haws, Dholakia & Bearden, 2010). However, the prevention scale was found to be not reliable (Cronbach’s $\alpha = .30$). The correlation matrix of all four items showed that none of the items were sufficiently strongly correlated with each other, with the highest Pearson’s $r$ being .32. Therefore, the item “I frequently think about how I can prevent
failures in my life” was chosen to form a single-item prevention scale. The reason was that it directly addressed the core idea of preventing losses, and thus was more closely related to the security need of prevention-focused individuals.

The promotion scale reached high reliability (Cronbach’s $\alpha = .71$), with the following five items: (1) When it comes to achieving things that are important to me, I find that I don’t perform as well as I would ideally like to do (reverse-coded); (2) I feel like I have made progress toward being successful in my life; (3) when I see an opportunity for something I like, I get excited right away; (4) I frequently imagine how I will achieve my hopes and aspirations; and (5) I see myself as someone who is primarily striving to reach my “ideal self”—to fulfill my hopes, wishes, and aspirations.
CHAPTER 5. RESULTS

**Regulatory Focus Priming Manipulation Check**

The regulatory focus score was calculated by subtracting the prevention score from the promotion score. A two-sample t-test was conducted on the mean regulatory focus scores between the promotion-prime (M = .59; SD = .99) and prevention-prime groups (M = .83; SD = 1.42), but no significant difference was found ($t (152) = -1.25, p = .11$). Therefore, a subsample was drawn from each group. Specifically, participants who scored below zero on regulatory focus were excluded from the promotion-prime group, resulting in a new promotion-prime sample with 66 cases.

For the prevention-prime group, at first, keeping only participants who scored zero or below zero was considered, but this approach would lead to 28 cases remaining in the sample. To keep the sample size of the prevention-prime group comparable to the size of the promotion-prime condition, the prevention-prime sample was scaled down by deleting cases in order of the regulatory focus score from high to low (the one who scored highest in regulatory focus was taken out first, and then the second highest), until the subsample size became similar to the size of the promotion-prime subsample. The cut-off line was found to be 1.25, and thus participants with a regulatory focus score of 1.25 or above were removed from the prevention-prime group. The new prevention-focused sample had 64 cases. Therefore, a total of 130 cases were used in the data analysis.

A two-sample t-test was again conducted on the mean regulatory focus scores between the new promotion-prime group (M = 1.29; SD = 1.29) and the new prevention-prime group (M = .18; SD = .68). Results showed the promotion-prime group was
significantly more promotion-oriented than the prevention-prime group ($t(99) = -6.17, p < .01$).

It should be noted that the differences in individuals’ regulatory focus in this study were on a relative basis. Although this might be a limitation of this study, it is believed that the results could still provide valuable insight to the regulatory focus literature, where the concept of regulatory focus is often considered as a spectrum, rather than two independent counterparts.

**Randomization Check**

The means and standard deviations of control variables are presented in Table 2. Concerning demographics, a three-way ANOVA was conducted on age, and no significant difference was found across conditions, between positive (M = 20.10; SD = 1.61) and negative framing groups (M = 20.19; SD = 1.68) ($F(1, 125) = .11, p = .74$), between promotion-focused (M = 20.20; SD = 1.47) and prevention-focused framing groups (M = 20.10; SD = 1.79) ($F(1, 125) = .12, p = .73$), nor between promotion-primed (M = 20.20; SD = 1.81) and prevention-primed participants (M = 20.09; SD = 1.46) ($F(1, 125) = .10, p = .75$).

Two separate chi-square tests were conducted on sex and ethnicity. Results showed that there was no significant difference in sex between the positive group and the negative framing group ($\chi^2(1) = .05, p = .83$), between the promotion framing and the prevention framing group ($\chi^2(1) = .18, p = .68$), or between the promotion-primed and the prevention-primed group ($\chi^2(1) = .01, p = .92$). Similar results were found in ethnicity, for message frames in terms of valence ($\chi^2(5) = 3.73, p = .59$), for message
frames in terms of regulatory focus ($\chi^2 (5) = 4.36, p = .50$), and for regulatory focus priming ($\chi^2 (5) = 3.06, p = .69$).

**TABLE 2**
Descriptive Statistics for Control Variables across Conditions (N=130)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Treatment conditions</th>
<th>Valence message framing</th>
<th>Regulatory focus message framing</th>
<th>Individuals’ regulatory focus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive framed condition</td>
<td>Negative framed condition</td>
<td>Promotional framed condition</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>20.10 (1.61)</td>
<td>20.19 (1.68)</td>
<td>20.20 (1.47)</td>
</tr>
<tr>
<td>Pleasure</td>
<td></td>
<td>4.66 (1.00)</td>
<td>4.62 (1.06)</td>
<td>4.72 (1.14)</td>
</tr>
<tr>
<td>Arousal</td>
<td></td>
<td>3.82 (1.07)</td>
<td>3.84 (0.91)</td>
<td>3.75 (1.04)</td>
</tr>
<tr>
<td>Experience with OBA</td>
<td></td>
<td>3.25 (1.12)</td>
<td>2.98 (1.34)</td>
<td>3.01 (1.26)</td>
</tr>
<tr>
<td>Knowledge about OBA</td>
<td></td>
<td>3.67 (1.46)</td>
<td>3.51 (1.54)</td>
<td>3.61 (1.59)</td>
</tr>
<tr>
<td>Privacy concerns about OBA</td>
<td></td>
<td>4.66 (1.43)</td>
<td>4.79 (1.23)</td>
<td>4.77 (1.34)</td>
</tr>
<tr>
<td>Internet use skills</td>
<td></td>
<td>3.60 (0.73)</td>
<td>3.57 (0.64)</td>
<td>3.58 (0.70)</td>
</tr>
</tbody>
</table>

Notes: Standard deviations are in parentheses.
* $p < 0.05$, significant difference between conditions.
With respect to the other control variables, three-way ANOVAs were conducted on mood, experience with OBA, knowledge about OBA, privacy concerns about OBA, and Internet use skills. No significant difference was found in the pleasure mood between the positive framing group (M = 4.66; SD = 1.00) and the negative framing group (M = 4.62; SD = 1.06) ($F(1, 125) = .06, p = .81$), and between the promotion framing (M = 4.72; SD = 1.14) and the prevention framing group (M = 4.56; SD = .91) ($F(1, 125) = .74, p = .39$). However, people primed with a promotion focus (M = 4.82; SD = .91) were in significantly higher pleasant mood than those primed with a prevention focus (M = 4.45; SD = 1.11) ($F(1, 125) = 4.08, p = .05$). Thus, pleasure will be controlled when hypothesis 2 is tested.

There was no significant difference across conditions in arousal, not between positive (M = 3.82; SD = 1.07) and negative framing (M = 3.84; SD = .91) groups ($F(1, 126) = .008, p = .93$), between promotion (M = 3.75; SD = 1.04) and prevention framing (M = 3.90; SD = .93) groups ($F(1, 126) = .73, p = .40$), or between promotion (M = 3.80; SD = 1.04) and prevention prime (M = 3.86; SD = .92) groups ($F(1, 126) = .09, p = .76$).

Also, no significant difference was found in how frequently participants were exposed to OBA, between the positive (M = 3.25; SD = 1.12) and negative framing (M = 2.98; SD = 1.34) groups ($F(1, 126) = 1.54, p = .22$), between the promotion (M = 3.01; SD = 1.26) and prevention framing (M = 3.20; SD = 1.23) groups ($F(1, 126) = .91, p = .34$), and between the promotion prime (M = 2.95; SD = 1.37) and prevention prime (M = 3.28; SD = 1.07) groups ($F(1, 126) = 1.88, p = .17$). Similar results were found in knowledge about OBA, between the positive (M = 3.67; SD = 1.46) and negative framing
(M = 3.51; SD = 1.54) groups (F (1, 126) = .36, p = .55), between the promotion (M = 3.61; SD = 1.59) and prevention framing (M = 3.57; SD = 1.42) groups (F (1, 126) = .01 p = .91), and between the promotion prime (M = 3.56; SD = 1.51) and prevention prime (M = 3.61; SD = 1.50) groups (F (1, 126) = .02, p = .88).

Privacy concerns on OBA did not differ across conditions either, between the positive (M = 4.66; SD = 1.43) and negative framing (M = 4.79; SD = 1.23) groups (F (1, 126) = .27, p = .61), between the promotion (M = 4.77; SD = 1.34) and prevention framing (M = 4.69; SD = 1.33) groups (F (1, 126) = .14 p = .71), nor between the promotion prime (M = 4.68; SD = 1.36) and prevention prime (M = 4.77; SD = 1.30) groups (F (1, 126) = .09, p = .77). In terms of Internet use skills, no significant difference was found between the positive framing (M = 3.60; SD = .73) and negative framing (M = 3.57; SD = .64) groups (F (1, 124) = .08, p = .78), between the promotion framing (M = 3.58; SD = .70) and prevention framing (M = 3.59; SD = .67) groups (F (1, 124) = .004, p = .95), and between the promotion prime (M = 3.52; SD = .66) and prevention prime (M = 3.65; SD = .70) groups (F (1, 124) = 1.07, p = .30).

In addition, two chi-square tests were conducted to examine differences in past experience with managing cookies among conditions. Regarding whether the participants have used any software that automatically deletes cookies, no significant difference was found between the positive and negative framing groups (χ² (2) = 4.30, p = .12), between the promotion and prevention framing groups (χ² (2) = 1.78, p = .68), or between the promotion and prevention prime groups (χ² (2) = 1.25, p = .53). Participants’ answers to whether they had cleaned cookies by themselves followed the same pattern, with no
significant difference between the two valence framing conditions \( \chi^2 (2) = .77, p = .68 \), the regulatory focus framing conditions \( \chi^2 (2) = .67, p = .72 \), or individuals’ regulatory focus priming conditions \( \chi^2 (2) = .61, p = .74 \). In sum, except for the pleasure mood, none of the control variables were found to be significantly different across experimental conditions and thus only the pleasure mood variable was controlled for in hypothesis testing.

**Descriptive Statistics of the Sample**

After participants who failed the manipulation check were excluded, the selected subsample was composed of 130 participants (95 females and 35 males). The average age was 20.15, and 73.8% of participants were White or Caucasian (non-Hispanic). The descriptive statistics of key variables are presented in Table 3.

When the intention to opt out was asked, participants indicated tendency to be inclined to opt out \( (M = 4.51; SD = 1.62) \), with the mean score slightly but significantly higher than the mid-point of a seven-point scale \( (t (129) = 3.56, p < .01) \). Additionally, participants held a neutral attitude toward OBA in general \( (M = 3.92; SD = .99) \), indicated by the mean score being not different from the mid-point of a seven-point scale \( (t (126) = -0.96, p = .34) \).

Regarding control variables, a one-sample t-test showed that the mean score of pleasure mood \( (M = 4.64; SD = 1.03) \) was significantly higher than the mid-point of a seven-point scale \( (t (128) = 7.06, p < .01) \), which indicates that participants were in mildly pleasant mood after the regulatory focus manipulation. The mean score of arousal \( (M = 3.83; SD = .99) \) was significantly lower than the mid-point of the scale \( (t (129) = - \)
1.99, \( p = .01 \), meaning that participants were not particularly aroused after the goal priming. In terms of the frequency of exposure to OBA, the mean score was 3.12 (SD = 1.24), and was not different from the mid-point of a five-point scale (\( t (129) = 1.06, p = .29 \)).

**TABLE 3**  
Descriptive Statistics for Key Variables and Control Variables (N=130)

<table>
<thead>
<tr>
<th>Variables</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention to opt out</td>
<td>4.51</td>
<td>1.62</td>
</tr>
<tr>
<td>Attitude toward OBA</td>
<td>3.92</td>
<td>0.99</td>
</tr>
<tr>
<td>Pleasure</td>
<td>4.64</td>
<td>1.03</td>
</tr>
<tr>
<td>Arousal</td>
<td>3.83</td>
<td>0.99</td>
</tr>
<tr>
<td>Experience with OBA</td>
<td>3.12</td>
<td>1.24</td>
</tr>
<tr>
<td>Knowledge about OBA</td>
<td>3.58</td>
<td>1.50</td>
</tr>
<tr>
<td>Privacy concerns about OBA</td>
<td>4.73</td>
<td>1.33</td>
</tr>
<tr>
<td>Internet use skills</td>
<td>3.59</td>
<td>0.68</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Use of software to delete</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cookies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>33</td>
<td>25.5%</td>
</tr>
<tr>
<td>No</td>
<td>65</td>
<td>50.0%</td>
</tr>
<tr>
<td>I’m not sure</td>
<td>32</td>
<td>24.6%</td>
</tr>
<tr>
<td><strong>Cleaning cookies by oneself</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>89</td>
<td>68.5%</td>
</tr>
<tr>
<td>No</td>
<td>25</td>
<td>19.2%</td>
</tr>
<tr>
<td>I’m not sure</td>
<td>16</td>
<td>12.3%</td>
</tr>
</tbody>
</table>
Participants had a moderate level of knowledge about OBA, as they answered the knowledge test questions right about 3.58 times out of seven. About a quarter of the participants (25.4%) had three right answers, 23.8% had four right answers, and 23.1% answered five questions correctly. Five participants were wrong on all questions, while two answered right on every question. Regarding participants’ privacy concerns about the practice of OBA in general, the mean privacy concern score of 4.73 (SD = 1.33) shows that the participants were slightly concerned (the mean was higher than the mid-point of a seven-point scale, \( t(129) = 6.24, p < .01 \)). In terms of Internet use skills, participants considered themselves to be above average (\( M = 3.59; \ SD = 0.68 \), \( t(127) = 9.72, p < .01 \)). In addition, half of participants (50.0%) had not used any software to delete cookies, but 68.5% indicated that they had cleaned cookies by themselves before.

**Hypothesis Testing**

Before presenting the results, it should be noted that this study uses a rather lenient standard of statistical significance in testing hypotheses, by interpreting results with a \( p \)-value higher than .05 but lower than .1 as marginally significant. As past research has pointed out that statistical significance is strongly affected by the sample size and effect size (e.g., Coe, 2002; Rosenthal & Rosnow, 1991), the reasons for using the significance level of \( p < .1 \) in this study are as follows. First, excluding participants who failed the manipulation check led to a smaller sample size, which reduced the statistical power of the tests comparing mean differences. Second, previous research has suggested the effect size of regulatory fit is often small when regulatory focus is induced by reflecting on one’s own life (Grewal et al., 2011). Grewal et al. (2011) conducted a
meta-analysis of the effect size of regulatory fit, and found that regulatory fit effects on behavior were smaller for temporarily primed regulatory focus than chronic regulatory focus. Among different primes, the effect sizes were especially smaller when regulatory focus is primed through self-reflection, than through exposure to external stimuli. Therefore, the manipulation of individuals’ regulatory focus in this study could have increased the difficulty of detecting regulatory fit effects.

H1 predicted that a positively-framed OBA educational message would lead to (a) more positive attitude toward OBA and (b) lower intention to opt out of OBA. To test H1, two separate two-sample t-tests were conducted between the positive framing group and the negative framing group, with attitude toward OBA and intention to opt out as dependent variables. There was no significant difference in attitude toward OBA between the positive framing group (M = 4.02; SD = .88) and the negative framing group (M = 3.81; SD = 1.08) (t (123) = 1.23, p = .22).

Of note, the measurement of attitude toward OBA consisted of two aspects, affective attitude and cognitive attitude. To further delve into the framing effect on multiple dimensions of attitude, two additional t-tests were conducted on affective attitude and cognitive attitude, separately. Affective attitude was computed by averaging the scores of the following items: “bad/good”, “unpleasant/pleasant”, and “dislikable-likable” (Cronbach’s α = .87). Cognitive attitude was calculated by averaging the scores of the remaining five items of the attitude scale (“dishonest/honest”, “worthless-valuable”, “unnecessary-necessary”, “insincere-sincere”, and “dangerous-safe”, Cronbach’s α = .87).
Results of the t-tests showed no significant difference in affective attitude toward OBA between the positive framing group (M = 3.88; SD = 1.07) and negative framing group (M = 3.80; SD = 1.31) \( (t(126) = .42, p = .34) \). However, the positive framing group (M = 4.12; SD = .85) had significantly more positive cognitive attitude toward OBA compared to the negative framing group (M = 3.80; SD = 1.02) \( (t(124) = 1.93, p = .03) \). Hence, the positive framed message was found to lead to a more positive cognitive attitude toward OBA in particular. Overall, the test results indicate only limited support for H1a, only for the cognitive attitude toward OBA.

In terms of opting out intention, the negative framing group (M = 4.81; SD = 1.55) expressed stronger intention to opt out of OBA than the positive framing group (M = 4.19; SD = 1.65) \( (t(126) = -2.19, p = .02) \). Thus, H1b was supported.

H2 predicted a moderating effect of regulatory fit on the dependent variables. To test this hypothesis, a new dummy variable of regulatory fit was created. Regulatory fit was coded as 1 when a promotion-primed person read a promotion-focused message and when a prevention-primed person read a prevention-focused message. Regulatory fit was coded as 0 when the primed regulatory focus of an individual did not match the regulatory focus of the message that this individual was exposed to.

Concerning H2a (attitude toward OBA), since in the previous hypothesis testing, main effect of the valence of message frames was not found on attitude toward OBA, the moderating effect of regulatory fit on attitude toward OBA was not tested, and it was concluded that H2a was not supported. An ANCOVA was conducted to test H2b (opt-out intention) with valence message framing, regulatory fit, and the interaction between
valence message framing and regulatory fit as the independent variables, and pleasure mood as a covariate. The results are presented in Table 4.

TABLE 4
ANCOVA Testing of Interaction Effects of Valence of Message Framing and Regulatory Fit

<table>
<thead>
<tr>
<th>Sources</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valence message framing (VMF)</td>
<td>124</td>
<td>12.72</td>
<td>5.00</td>
<td>0.03*</td>
</tr>
<tr>
<td>Regulatory fit (RF)</td>
<td>124</td>
<td>1.08</td>
<td>0.42</td>
<td>0.52</td>
</tr>
<tr>
<td>Pleasure</td>
<td>124</td>
<td>3.21</td>
<td>1.26</td>
<td>0.26</td>
</tr>
<tr>
<td>VMF × RF</td>
<td>124</td>
<td>7.19</td>
<td>2.82</td>
<td>0.096*</td>
</tr>
</tbody>
</table>

* p < 0.10, * p < 0.05

Results showed a marginally significant two-way interaction between valence message framing and regulatory fit on opt-out intention ($F(1, 124) = 2.82, p = .096$). The model explained 7.11% of the variability in opt-out intention. The main effect of valence message framing was significant ($F(1, 124) = 5.00, p = .03$), while there was no main effect of regulatory fit ($F(1, 124) = .42, p = .52$). Follow-up simple effects tests demonstrated that, when regulatory fit was higher, a positively-framed message (M = 4.05; SD = 1.64) led to significantly lower intention to opt out than a negatively-framed message (M = 5.04; SD = 1.50) ($F(1, 75) = 7.88, p < .01$). However, when regulatory fit was lower, no significant difference was found between the positive frame condition (M = 4.40; SD = 1.58) and the negative frame condition (M = 4.37; SD = 1.69) ($F(1, 48) = .01, p = .91$; See Figure 1). Thus, marginal support was found for H2b.
FIGURE 1
Interaction Effect of Valence Message Framing and Regulatory Fit on Opt-out Intention

Opt-out Intention

Negatively-Framed Message  Positively-Framed Message

5.04

4.37

4.4

4.05

Low Regulatory Fit
High Regulatory Fit
CHAPTER 6. DISCUSSION

Discussion of Results

This study investigated how differently-framed descriptions of OBA and explanation of the opt-out option in OBA educational messages influenced consumer responses to OBA and opt-out decisions. Specifically, the research examined the effects of positive-negative valence framing in OBA educational messages on consumers’ evaluation of OBA and behavioral response to the opt-out option, and the moderating role of regulatory focus fit in the relationship between the valence framing and consumer responses.

As predicted, the valence message framing was found to affect consumers’ intention to opt out of OBA. Results demonstrated that consumers exposed to the positively-framed information were less likely to opt out of OBA, than those exposed to the negatively-framed information. Consistent with prior research on the effects of valence framing, this study’s finding confirms that whether an issue is presented in a positive or negative manner in a message impacts people’s behavioral reactions to the issue (e.g., de Vreese & Boomgaarden, 2003).

However, the valence message framing did not significantly affect consumers’ overall attitude toward OBA. The absence of framing effects on attitude may have been caused by the unique nature of OBA. A number of framing effect studies have pointed out that prior predispositions on the individual level can influence framing effects on evaluations, such that people with strong preexisting attitudes toward a certain issue are
less likely to be affected by message framing (e.g., Chong & Druckman, 2007; Elliott, Fitzgerald, Hayward, & Krasteva, 2009; Shen & Edwards, 2005). For example, Elliot et al. (2009) found that social justice frames had impact on individuals’ support for a social welfare program related to black people only among people with ambivalent or neutral attitudes toward symbolic racism. Concerning OBA, past studies have shown that consumers hold polarized attitudes toward OBA, either expressing strong favorable opinions about OBA or strong dislike for OBA (McDonald & Cranor, 2010). It is possible that such prior attitudes on both sides might have made consumers be less susceptible to valence framing effects.

Although the valence framing did not significantly affect the overall attitude toward OBA, a significant effect was found for the cognitive aspect of attitude toward OBA. Consumers exposed to a positive frame showed more positive cognitive attitude toward OBA than those exposed to a negative frame. This finding might be explained by previous research findings showing inconsistency between affective and cognitive attitude toward OBA (Ur et al., 2012). Ur et al. (2012) reported that positive beliefs and negative emotions may coexist in consumers’ perception of OBA, as consumers tend to consider OBA to be smart and useful, but scary and creepy.

A possible explanation for the framing effect on cognitive attitude could be that the educational materials, which present information about OBA in a rather formal language with clear logic, require higher levels of cognitive processing. Thus, when exposed to the educational messages, most people tend to elaborate on it, and elaboration may then facilitate persuasion if the arguments in the messages are strong enough (Petty
& Cacioppo, 1986). During this process, framing effects are more likely to be guided by cognition rather than emotion. As a result, the effects of valence framing would likely be more observable in consumers’ thoughts and beliefs, but not in their affect. Evidence consistent with this is also found in several other framing effect studies showing that cognitive message framing is more persuasive when the target attitude or message receiver is cognitively-oriented as opposed to affectively-oriented (Mayer & Tormala, 2010; Ryffel & Wirth, 2015). For example, Ryffel and Wirth (2015) found that cognitive message frames were more effective in changing cognition-based attitudes, while affective message frames were more effective in altering affect-based attitudes.

Regarding the role of regulatory fit, the hypothesized moderating effect of regulatory fit on attitude toward OBA was not supported, but this study’s results suggest a marginally significant moderating effect of regulatory fit on consumers’ opt-out intention. The $p$-value for the effect of regulatory fit was not within the conventional bounds of statistical significance ($p < .05$), but lower than .10 ($p = 0.096$). When regulatory fit was higher, a positively-framed message led to significantly lower opt-out intention. When regulatory fit was lower, no difference in opt-out intention was found between the positive and negative framing groups. This finding is in line with previous research suggesting that regulatory fit strengthens effects of a persuasive message, magnifying both positive and negative responses (e.g., Aaker & Lee, 2001).

The reason why the interaction effect of message framing and regulatory fit did not reach the statistical significance level could be related to the small sample size in this study and the small effect size of regulatory fit. Another plausible explanation could be
that the manipulation of individuals’ regulatory focus, especially that of the prevention focus, was not strong enough to make participants experience a sufficiently high level of regulatory fit. The mean of the regulatory score in the prevention-prime group was .18 (SD = .68), and was significantly higher than zero \( t (63) = 2.11; p = .04 \). It means that, after going through the goal priming, some participants in the prevention-prime group were not really prevention focused in an absolute sense while less promotion-focused than the promotion group in a relative sense. These participants would likely have experienced rather moderate levels of regulatory fit when exposed to a prevention-framed message. With stronger manipulations of individuals’ regulatory focus, the moderating effects of regulatory fit could be more pronounced.

**Implications**

The current study makes several contributions to advancing our understanding of consumer responses to OBA and the effects of consumer educational materials, and to the message framing effects and regulatory fit research. First, this study advances the OBA research by bringing attention to the important patterns in the description of OBA and consequences of opt-out in OBA educational messages published by different stakeholders in the online advertising domain, and by empirically proving effects of the different message framing on consumers’ cognitive attitude toward OBA and opt-out intention. Past OBA research has implied the possibility of such effects (Leon et al., 2012), but has not empirically tested it. This study also makes a meaningful research contribution by proposing and testing a theoretical explanation for why different framing
in educational messages could change consumers’ judgment and decision-making related to OBA.

Second, this study contributes to the valence framing effect literature by applying a broadened definition of valence framing that originates from political communication studies (e.g., de Vreese & Boomgaarden, 2003) to advertising research. Previous studies on valence framing effects in the domain of advertising have mainly focused on the how a single piece of logically identical information can be positively or negatively presented, usually reflected by a single word or simple numerical probabilities (e.g., 75% lean vs. 25% fat) (Levin & Gaeth, 1988). However, this study examined valence framing in a more implicit and complex manner that included specific wording (online interest-based advertising vs. online behavioral advertising), and different aspects of an issue (informativeness vs. privacy risks). The results provide empirical evidence supporting the effects of implicitly valenced message frames. Moreover, this study suggests that message framing might influence affective and cognitive components of attitude differently. The different effects could be topic-specific and might be moderated by the message recipient’s motivation to process information. The differential effects of message framing on subdimensions of attitude call for further empirical research.

Third, this study extends the research on regulatory fit in two ways. While most prior research has focused on the positive effects of regulatory fit on persuasion (e.g., Cesario, Grant, & Higgins, 2004), this study offers empirical evidence that regulatory fit may also intensify negative responses to a persuasive message. Also, past studies usually manipulated promotion- and prevention-focused framing through the presence of a gain
vs. loss situation (e.g., Lee & Aaker, 2004). This study, however, demonstrated that regulatory fit effects could occur when the regulatory focus of a message was operationalized as different types of regulatory concerns (benefits vs. security). The finding offers further support to the robustness of regulatory fit effects.

In addition, there are two major practical implications stemming from the results of this study. On the one hand, from a policy perspective, the current research has important implications for consumer privacy protection. Regulatory authorities have issued a set of principles regarding the disclosure of OBA and consumer education regarding OBA. However, the effects of these education campaigns have not been found consistently (Leon et al., 2012). The current study suggests one explanation for that: The educational messages provided by advertising companies may portray OBA as a practice beneficial to consumers, which, in turn, would foster positive beliefs about OBA and reduce consumers’ intention to opt out.

This study’s findings call for more thoughtful and specific regulatory guidelines for the implementation of the education principle, on how advertising companies define and describe OBA and the consequences of opt-out to consumers. Specifically, it is advisable for regulatory agencies to require different entities involved in OBA, including advertising companies, Internet access service providers and website publishers, to provide consistent description of OBA in their educational messages. In addition, the description should clarify the stakeholders of OBA and provide detailed explanation of how consumer data are used to generate behaviorally targeted ads in plain language. Of importance, it is essential to explicitly mention the action of online tracking and online
profiling in the definition of OBA. For example, the following information may be presented: the collectors of consumer data, the tools used to track consumers’ online behavior, the kinds of data being collected, the sellers and buyers of consumer data, and the process of establishing consumers’ online profiles and displaying ads based on the profiles. Such guidelines could reduce confusion and better inform consumers about the OBA practice, so that consumers are able to make informed decisions on the opt-out option.

On the other hand, this study recommends the advertising industry to develop more objective information of OBA for consumers, to better fulfill its commitment to social responsibility. Some possible ways include replacing the label of “interest-based advertising” with more straightforward “behaviorally-targeted advertising,” and clearly explaining how the tracking, analyzing, and trading consumer data are done for the practice of OBA.

**Limitations and Directions for Future Research**

The study has several shortcomings that should be acknowledged and present opportunities for future researchers. First, the generalizability of this study’s findings is limited by the use of a student sample. Future research should replicate this study with a more representative regular consumer sample. Another threat to the external validity of the findings comes from the stimuli used in this study. Although the stimuli were carefully designed based on existing consumer choice education materials, they were not developed by professional web designers, and presented as a static picture rather than a dynamic webpage which consumers can scroll down and click on. Further, the message
exposure context was artificial, since participants were explicitly asked to read the educational messages, whereas in real life consumers are directed to the educational messages by voluntarily clicking on the Ad Choice icon. Future research could enhance external validity by making the experimental context more close to the real-life exposure condition.

In addition, the results of the manipulation check on regulatory focus priming in the pilot study and that in the main study were not consistent, and the prevention focus measurement of Haws et al.’s (2010) RF-COMP scale appeared to be unreliable in the main study. Using the RF-COMP scale, Hong (2015) also reported a low reliability score of the prevention focus measurement (Cronbach’s $\alpha = .39$). Therefore, future research is strongly encouraged to explore stronger priming procedures for manipulating individuals’ regulatory focus, and more effective scales to measure situationally-primed regulatory focus.

Furthermore, as the stimuli were derived from real-world OBA educational messages with few alterations, the manipulation of valence framing could have introduced some potentially confounding variables that affected consumers’ responses to OBA, such as perceived risk of OBA. To illustrate, the educational message in the negative framing condition stated that online behavioral advertising tracked consumers’ online activities and was typically invisible to consumers. The description may lead to higher levels of perceived privacy risk of OBA by suggesting potential loss and misuse of consumer data. As a result, stronger intention to opt out of OBA in the negative framing group might be caused by higher levels of perceived risk, as past studies demonstrated
that perceived risk increased individuals’ intention to engage in risk-reduction behaviors (e.g., Dowling, & Staelin, 1994). Regarding the online environment, Featherman and Pavlou (2003) found that perceived risk decreased consumers’ adoption intention of e-service. Future studies may seek to operationalize valence framing with stricter control for the confounders stemming from the content, so as to strengthen the internal validity of the research.

Lastly, this study did not directly test the mechanism underlying the framing effects of OBA educational messages and the regulatory fit effects. Future research is recommended to extend this line of research by investigating the psychological mechanism of such effects. For example, some boundary conditions of the framing effects could be the strength of prior opinions and personal involvement, and a potential mediator of regulatory fit effects could be processing fluency. These possibilities should be empirically tested to advance the advertising message framing effects theory building.
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APPENDIX 1: MAIN STUDY QUESTIONNAIRE

1. Participants are randomly assigned to two conditions: the promotion prime condition and the prevention prime condition.

(1) In the promotion prime condition, the instruction is:
For this task, we would like you to take a few minutes to think about a time in the past when:
   a) you felt like you made progress toward being successful in life
   b) compared to most people you were able to get what you wanted out of life
   c) you felt like you failed to make progress toward being successful in life

In the space below, please write a brief essay describing your experience (what exactly happened) in each situation.
   a) When you felt like you made progress toward being successful in life:

   b) When compared to most people you were able to get what you wanted out of life:

   c) When you felt like you failed to make progress toward being successful in life:

(2) In the prevention prime condition, the instruction is:
For this task, we would like you to take a few minutes to think about a time in the past when:
   a) being careful enough avoided getting you into trouble
   b) you stopped yourself from acting in a way that your parents would have considered objectionable
   c) not being careful enough has gotten you into trouble

In the space below, please write a short essay describing your experience (what exactly happened) in each situation.
   a) When being careful enough avoided getting you into trouble:

   b) When you stopped yourself from acting in a way that your parents would have considered objectionable:

   c) When not being careful enough has gotten you into trouble:
2. In this section, you will see 10 statements. Please read each statement carefully and indicate to what extent the statement applies to you.

<table>
<thead>
<tr>
<th>Very untrue of me</th>
<th>Untrue of me</th>
<th>Somewhat untrue of me</th>
<th>Neutral</th>
<th>Somewhat true of me</th>
<th>True of me</th>
<th>Very true of me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

1) When it comes to achieving things that are important to me, I find that I don’t perform as well as I would ideally like to do.
2) I feel like I have made progress toward being successful in my life.
3) When I see an opportunity for something I like, I get excited right away.
4) I frequently imagine how I will achieve my hopes and aspirations.
5) I see myself as someone who is primarily striving to reach my “ideal self”—to fulfill my hopes, wishes, and aspirations.
6) I usually obeyed rules and regulations that were established by my parents.
7) Not being careful enough has gotten me into trouble at times.
8) I worry about making mistakes.
9) I frequently think about how I can prevent failures in my life.
10) I see myself as someone who is primarily striving to become the self I “ought” to be—fulfill my duties, responsibilities and obligations.

3. In this section, please indicate how you’re feeling right now after recalling your past experiences. For each pair of adjectives presented to you, please choose the answer closest to how you feel right now. Some of the adjective pairs may seem unusual, but please try to answer all questions based on how you feel relatively more one way than the other.

<table>
<thead>
<tr>
<th></th>
<th>Very</th>
<th>Neutral</th>
<th>Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depressed</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Unhappy</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Annoyed</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Relaxed</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Calm</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Sluggish</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
4. Participants are randomly assigned to four conditions: positive-promotion framing, positive-prevention framing, negative-promotion framing, and negative-prevention framing (See Appendix 2 for the stimuli for message frames).

(1) In the positive-promotion framing and positive-prevention framing conditions, the instruction is:
The next task is to read a message about online interest-based advertising, and then answer the questions related to it. Take your time and read the following message carefully.

(2) In the negative-promotion framing and negative-prevention framing conditions, the instruction is:
The next task is to read a message about online behavioral advertising, and then answer the questions related to it. Take your time and read the following message carefully.

[Read the OBA educational message]

--- PAGE BREAK ---

5. How likely is it for you to opt out of online interest-based advertising (in positive-promotion framing and positive-prevention framing conditions)/online behavioral advertising (in negative-promotion framing and negative-prevention framing conditions)?

<table>
<thead>
<tr>
<th>Extremely Unlikely</th>
<th>Quite Unlikely</th>
<th>Slightly Unlikely</th>
<th>Neutral</th>
<th>Slightly Likely</th>
<th>Quite Likely</th>
<th>Extremely Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

--- PAGE BREAK ---

6. Please indicate how you feel about online interest-based advertising (in positive-promotion framing and positive-prevention framing conditions)/online behavioral advertising (in negative-promotion framing and negative-prevention framing conditions) using the adjective pairs presented below. Please choose the answer closest to your opinions about online interest-based advertising/online behavioral advertising.

<table>
<thead>
<tr>
<th></th>
<th>Very</th>
<th>Neutral</th>
<th>Very</th>
<th></th>
<th>Very</th>
<th>Neutral</th>
<th>Very</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bad</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Good</td>
</tr>
<tr>
<td>Dishonest</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Honest</td>
</tr>
<tr>
<td>Unpleasant</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Pleasant</td>
</tr>
<tr>
<td>Worthless</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Valuable</td>
</tr>
<tr>
<td>Dislikable</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Likable</td>
</tr>
<tr>
<td>Unnecessary</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>Necessary</td>
</tr>
</tbody>
</table>
7. You are almost done! There are just a few more questions I would like to ask you for classification purposes.

In this study, **online behavioral advertisements** refer to online banner ads that re-show the specific products/services you have recently clicked on and viewed online or features the specific brands of online stores you have recently visited.

For example, you visited Adidas’ online store to buy a new pair of sneakers. You clicked on a few items, but didn’t buy anything. Later, you went to the Star Tribune website to read about the Minnesota Vikings team. On top of the website, there was a banner ad showing the picture of the pair of shoes you just browsed on Adidas’ website.

7.1 Have you ever seen online behavioral ads when browsing the Internet?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

7.2 In the past week, how frequently did you see online behavioral ads when browsing the Internet?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>About once or twice</td>
<td>Several times</td>
<td>Once almost everyday</td>
<td>Several times a day</td>
<td></td>
</tr>
</tbody>
</table>

7.3 The following are some factual statements about online behavioral advertising. Some are true statements while others are false. To the best of your knowledge, please answer if each statement is true or false. There is no harm in getting these questions wrong. We are only interested in your honest response. If you don’t know the answer, just select “I don’t know.”

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>True</td>
<td>False</td>
<td>I don’t know</td>
<td></td>
</tr>
</tbody>
</table>

1) Advertisements appearing on a website are same for everyone visiting the site at a given time.
2) Consumers have the ability to choose whether to allow marketers to collect and use their Internet use data (such as search terms, visited sites, online purchases) for online behavioral advertising purposes.

3) Companies can gather and store information about consumers’ Internet use (such as search terms, visited sites, online purchases) only when they obtain consent from consumers.

4) Online behavioral advertising is required by law to provide a notice to consumers disclosing and informing consumers about data collection and use of consumers’ website use data.

5) Websites can transfer data about consumers’ Internet use to advertisers for online behavioral advertising purposes.

6) In most cases of online behavioral advertising, the data collected is not personally identifiable information (consumer’s name, physical address, or similar identifier that could be used to identify the consumer in the offline world).

7) If you see an online behavioral ad displayed on a certain website, it means that this website is collecting information about your Internet use.

7.4 The following statements are about how you might feel about online behavioral advertising and online marketers’ use of your data. Please indicate how much you agree with each statement.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Somewhat disagree</th>
<th>Feel neutral</th>
<th>Somewhat agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

When I see online behavioral advertising,
1) I feel uncomfortable because my information seems to be shared among marketers without my permission.
2) I am concerned about misuse of my personal information.
3) I feel fear that my information may not be safe while stored.
4) I believe that personal information is often misused.
5) I think companies share consumers’ personal information without permission.

7.5 The following questions are about your daily use of Internet. There are no right or wrong answers. We appreciate your honesty with your answers.

7.5.1 In terms of your Internet use skills, do you consider yourself to be . . . “
7.5.2 Have you ever used any software that automatically deletes cookies for you?

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>I’m not sure</td>
<td></td>
</tr>
</tbody>
</table>

7.5.3 Have you ever cleared cookies by yourself?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>I’m not sure</td>
</tr>
</tbody>
</table>

8. Demographics

8.1 What is your age?

- - - - PAGE BREAK - - - -

8.2 What is your sex?
- Male
- Female

8.3 Please specify your ethnicity.
- White or Caucasian (non-Hispanic)
- Black or African American
- Asian
- Hispanic or Latino
- Native American or Alaska Native
- Native Hawaiian or other Pacific Islander
- Other or Mixed Race
APPENDIX 2: STIMULI

(1) The positive and promotion-focused framing condition

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Control your online ads

You can control the ads that are delivered to you based on your interests, across devices, by editing the settings on this page.

About Interest-Based Advertising

Some websites work with ad partners to bring consumers more useful and interesting advertising content. As a result, some of the ads you receive on web pages are customized based on your interests generated from your visits to different websites. Such online advertising helps support the free content, products and services you get online.

For example, you may be looking for a present for a friend (a coffee maker for instance) and search a department store website and click on a few different coffee makers in the appliances section. After a while you give up your search and decide to visit an online newspaper site to read an article. Once there, you may find that you are then presented with ads for different coffee makers.

It's up to you.

By clicking “I’d like to opt out” on this page, you can opt out from the collection of Web viewing data for online interest-based advertising.

What you can expect after opting out

- You will still see the same number of ads as before, but they are less relevant to you, because they aren’t based on your interests.
- You will no longer be able to receive interest-based ads, when you browse online. Instead, you will receive random online ads.
- Opting out of online interest-based advertising means you will also be opting out of other personalized services provided by advertisers. For example, you will no longer be able to edit your interests online.
(2) The positive and prevention-focused framing condition

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What you can expect after opting out

- Opting out of online interest-based advertising limits the ways advertisers collect information about your browsing activities. However, opting out does not stop data tracking of advertisers completely. Advertisers may collect your information through non-cookie technologies.

- Your information will not be used for advertising purposes, but may be used for other purposes other than delivering advertising.
The negative and promotion-focused framing condition

Control your online ads
You can control the ads that are delivered to you based on your online behaviors, across devices, by editing the settings on this page.

About Online Behavioral Advertising

Online behavioral advertising involves the tracking of consumers’ online activities in order to deliver tailored advertising. The practice, which is typically invisible to consumers, allows businesses to align their ads more closely to the inferred interests of their audience.

For example, you may be looking for a present for a friend (a coffee maker for instance) and search a department store website and click on a few different coffee makers in the appliances section. After a while you give up your search and decide to visit an online newspaper site to read an article. Once there, you may find that you are then presented with ads for different coffee makers.

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