



# Hedonic vs. epistemic goals in processing persuasive communications: Revisiting the role of personal involvement

Ana Cancela<sup>1</sup> · Pablo Briñol<sup>2</sup> · Richard E. Petty<sup>3</sup>

Received: 15 June 2020 / Accepted: 18 February 2021

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC part of Springer Nature 2021

## Abstract

Practitioners and researchers interested in designing wise interventions often recommend increasing personal involvement to be successful. Early research demonstrated that personal involvement increases elaboration leading to more persuasion for strong arguments, but to reduced persuasion if the arguments presented are specious. In most prior work, message recipients were plausibly motivated by their desire for knowledge. In the current research, we compare this epistemic goal to another goal in which people aim to process information to be entertained or have fun. Results showed that when people processed to gain knowledge (epistemic goal), they elaborated more in high personal involvement conditions, replicating the classic finding. However, high personal involvement decreased elaboration for people in hedonic conditions, reversing the classic interaction, and introducing a novel finding that is consistent with recent research suggesting that “thinking for pleasure” can be difficult.

**Keywords** Persuasion · Attitudes · Elaboration · Involvement · Epistemic · Hedonic

## Introduction

Practitioners and researchers interested in designing effective (wise) interventions often recommend increasing personal involvement to facilitate change (e.g., Walton & Wilson, 2018). For example, linking teaching materials to the self increases the effort invested by students in a course (Harackiewicz et al., 2012; Hulleman & Harackiewicz, 2009). Indeed, personal involvement can be good for persuasion, at least under some circumstances. Persuasion research has consistently shown that increasing involvement with a communication can increase thinking about it (Petty & Cacioppo, 1990). That is, when a relatively new issue is made more personally relevant by linking it to the self in some way, people engage in greater processing of information on that issue.

In the present research, we rely on the elaboration likelihood model (ELM) of persuasion (Petty & Briñol, 2012; Petty & Cacioppo, 1986) to base our predictions. The ELM was an early “dual process” theory of judgment (Chaiken & Trope, 1999; Sherman et al., 2014) that specifies several discrete mechanisms of attitude change. The theory holds that these distinct processes operate at different points along an elaboration continuum ranging from little or no thought about a persuasive message or attitude object to careful and extensive thought about the message or attitude object. Low-elaboration processes are collectively referred to as following the *peripheral route* to persuasion, whereas high-elaboration processes are collectively referred to as following the *central route* to persuasion. The ELM also postulates that whether people engage in the peripheral or the central route to persuasion depends on their ability and motivation to think in the context in which persuasion occurs. For instance, distractions, rapid speech, and little domain knowledge can undermine one’s ability to think about a message. Other variables, such as message repetition, general intelligence, and high message clarity, can aid one’s ability to process a message (Petty & Briñol, 2012; Petty & Cacioppo, 1986).

Most relevant to the present research, whether the peripheral or central route is used also depends on the perceiver’s

✉ Ana Cancela  
acancela@villanueva.edu

<sup>1</sup> Departamento de Psicología (Despacho 3.3), Centro Universitario Villanueva, C/ Costa Brava, 6 Edificio B., 28034 Madrid, Spain

<sup>2</sup> Universidad Autónoma de Madrid, Madrid, Spain

<sup>3</sup> Ohio State University, Columbus, USA

motivation or desire to process the message. Perhaps the greatest determinant of motivation is the perceived *personal relevance* of the information. As noted, when the personal involvement with a message is high, individuals are motivated to scrutinize the evidence more carefully. As a result of this enhanced processing, if the evidence is found to be strong, more favorable attitudes result, but if the evidence is found to be weak, less favorable attitudes result (Petty & Cacioppo, 1979). Conversely, when motivation to think is low, individuals are less influenced by argument quality and more influenced by simple cues in the message that take less cognitive effort to process, such as the length of the message and whether a message is endorsed by an attractive or unattractive source (e.g., Petty & Cacioppo, 1984). Thus, whenever the message can be linked to some aspect of the recipient's "self" (e.g., values, outcomes, and identities), it can enhance self-relevance and increase the likelihood of processing the message (Blankenship & Wegener, 2008; Fleming & Petty, 2000; Petty & Cacioppo, 1990).

In an early study illustrating this link between involvement and elaboration (Petty & Cacioppo, 1979), undergraduates' personal involvement was manipulated by telling them that their own university (vs. a distant one) was contemplating implementing a new prerequisite to graduation. Students heard a radio editorial presenting arguments in favor of the new policy that were manipulated to be strong or weak. Varying the quality of the arguments in a persuasive proposal and examining how much impact these arguments have on judgments is a widely used technique for determining the extent of elaboration in which people are engaged (Petty et al., 1976). People are more persuaded by strong persuasive arguments than weak ones but especially when people are motivated and able to process those arguments. Put simply, compared to people who are not engaged in extensive thinking, people who are scrutinizing the message carefully are more likely to detect and respond to differences in argument quality. In the original study by Petty and Cacioppo (1979), the quality of these arguments had a different impact on attitudes depending on the personal involvement. That is, for those who were told that their own university was the one implementing the new policy, the argument quality effect on attitudes was larger than for those who were told that a distant university was the one considering the policy.

Burnkrant and Unnava (1989) also demonstrated the power of perceived self-relevance by simply changing the personalization of the pronouns in the message. Reading a message in the first (vs. third) person increased elaboration and subsequent discrimination between strong and weak arguments. These studies are examples of how linking the message to self-features such as a person's values, identities or outcomes can increase the likelihood of processing the communication. In another early demonstration of this effect, Petty and colleagues (1983) exposed participants to

an advertisement for a disposable razor that contained strong or weak arguments. To create high personal involvement with the product, some participants were told that at the end of the study they would select from various brands of disposable razors as their reward for participating. To create low involvement, other participants were told that they would select from among brands of toothpaste. The high involvement participants were further told that the razor to be advertised would be test marketed in their city whereas low involvement participants were led to believe that the product would be unavailable in their market. Results demonstrated larger argument quality effects on attitudes (i.e., more persuasion for the strong than weak arguments) when the advertisement was high versus low in personal involvement.

Since these initial examples of the argument quality and personal involvement interaction on attitudes, other studies have replicated the same results using different materials and inductions (see Carpenter, 2015, for a meta-analytic review). Furthermore, past studies on persuasion have provided support for the Elaboration Likelihood Model's *elaboration-strength postulate* that claims that attitudes formed from a high elaboration process predict behavior better than those formed from a comparatively less thoughtful process (Petty & Briñol, 2012; Petty & Cacioppo, 1986). For example, the consumer study just described (Petty et al., 1983) showed that the attitudes of participants processing the ad under high personal involvement conditions were more predictive of their intentions to purchase the product than were the attitudes of those processing the same ad under low involvement conditions.

In prior research, the interaction between personal involvement and argument quality was examined when message recipients were likely motivated by their desire to learn about the topic or the product to form an accurate opinion. Indeed, one of the major motivations that drives human thoughts and behaviors is the *need to know* which refers to the desire to possess knowledge about and understand the world (Maslow, 1962). Gaining accurate knowledge is the typical or default goal assumed by contemporary persuasion theories such as the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986) and the Heuristic-Systematic Model (HSM; Chaiken et al., 1989). Of course, other motives can sometimes overwhelm this general goal (Briñol & Petty, 2005; Petty & Cacioppo, 1990). Indeed, persuasion theorists have examined several motives that bias people toward a particular conclusion rather than objectively weighing all possibilities such as when the need for specific closure is activated (Kruglanski & Webster, 1996). One of the most studied biasing motives is based on the need for cognitive consistency as evident in Festinger's (1957) theory of *cognitive dissonance*. In addition to consistency, other motives can also bias information processing such

as a desire to be free and independent (i.e., the *reactance* motive; Brehm, 1966; Wicklund, 1974) or to belong to a group (i.e., the need to belong; for a discussion of motives in persuasion, see Briñol & Petty, 2005, 2019). The ELM explicitly postulates that even when people may think they are being accurate, the thinking that they do can be biased by various other motives that direct the thinking in a particular direction (Petty & Briñol, 2012; Petty & Cacioppo, 1986). When particular motives bias thinking (sometimes called *motivated reasoning*; Kunda, 1990), people end up generating thoughts (favorable or unfavorable) that are consistent with their desired conclusion.

In the current research, we compare the default accuracy goal to an alternative one in which people aim to process information to be entertained or have fun, a *hedonic* goal. Hedonic goals have received recent attention (Wilson et al., 2019), with research showing that thinking for pleasure with the deliberate intention of having fun can be difficult (Wilson et al., 2014). As we explain next, we hypothesized that when people were instructed to process a communication in order to learn accurate knowledge (epistemic goal), they would show greater elaboration in high (vs. low) personal involvement conditions. This would produce the classic and well-replicated finding in the persuasion literature just described. But, with a hedonic goal, the outcome is expected to be different. The rationale for these divergent predictions is described next.

### Processing in order to experience hedonic entertainment

Despite the apparent clarity of the prior literature regarding the impact of personal involvement on message processing, as just noted people are not always motivated by their desires to seek knowledge and form accurate opinions (Chaiken et al., 1989). In fact, approaching pleasure and avoiding unpleasantness is another fundamental motive (Thorndike, 1927). That is, people not only want to know, but on some occasions, they also want to feel good and be entertained.

Recent research in social psychology has paid attention to hedonic goals, revealing that trying to have fun while thinking can be difficult, especially in situations that require high effort, and concentration (Wilson et al., 2019). Beyond social psychology, hedonic goals have also received attention in other domains. For example, some authors in communication have considered the hedonic goal as a probable precursor of communication-processing strategies that are appropriate for obtaining amusement and being distracted from everyday life (Bartsch & Schneider, 2014; Green et al., 2004; Slater & Rouner, 2002). In other words, to escape self-awareness, a common strategy is to narrow the focus of attention to the present and immediate stimulus environment and move away from personally relevant information

(Baumeister, 1991). One reason for this is that personally relevant information might make people aware of how they are falling short of their goals or standards (Duval & Wicklund, 1972).

Furthermore, when people have hedonic goals, they look to become transported into the lives of others (e.g., fictional characters), moving focus away from the self (Green, 2006). Moving away from the self through transportation into stories often includes identification with other people, real or imagined (Green et al., 2004), greater processing of external communications (Bailyn, 1959), and getting engaged with the drama in a story (Bryant & Comisky, 1978). Thus, focusing on the self can be incompatible with an entertainment goal, with getting involved in the drama or story itself (Slater & Rouner, 2002). Although hedonic motives tend to be associated with wanting to escape from the self, that does not mean that occasionally hedonic goals could increase attention to the self instead (e.g., Andrade & Cohen, 2007; Bartsch & Schneider, 2014; Igartua & Vega Casanova, 2016) such as when one's goal is to entertain other people (e.g., Echterhoff et al., 2008).

In sum, based on repeated personal experiences with entertainment media that allow people to escape from themselves, one could expect that people with a hedonic goal would be more able and/or more motivated to elaborate information that is not self-relevant than self-relevant. In this sense, our prediction is that individuals who are driven by a goal to process a persuasive communication for hedonic reasons would elaborate the presented information more in low personal involvement conditions compared to those with a learning or accuracy goal and more than when personal involvement is high, the opposite of the typical effect of personal involvement in the literature.

### Different goals operate under different conditions

Based upon the research just described, we proposed that a goal (i.e., epistemic versus hedonic) can interact with the personal involvement of the persuasion setting to influence the extent of processing of a communication. Specifically, we hypothesized that an epistemic goal fits with high personal involvement better than low personal involvement whereas as a hedonic goal fits better with low rather than high personal involvement. Or stated differently, high personal involvement fits better with (i.e., matches) an epistemic rather than a hedonic goal whereas low personal involvement fits better with a hedonic rather than an epistemic goal. This suggests that with an epistemic goal, message processing would be greater when the situation is high in personal involvement compared to low (the standard effect in the literature). In contrast, with a hedonic goal, we hypothesized that message processing

would be greater when the situation is low in personal involvement compared to high (opposite to the standard effect).

This hypothesis, though novel with respect to persuasion, is consistent with some prior research on psychological engagement. Specifically, Higgins et al. (2010) varied whether people were given a fun (hedonic) or serious (epistemic) goal and were then confronted with a relatively important or unimportant task. Their key finding was that participants reported greater interest in repeating an activity when that activity matched rather than mismatched their goal. That is, their data showed that people with the fun goal with a low importance task or the serious goal with a high importance task showed more engagement with the tasks than those in the mismatched conditions (i.e., fun goal with a high importance task and serious goal with a low importance task).

Finally, our prediction that the typical impact of personal relevance on information processing can be reversed under certain conditions is also consistent with previous research showing that the same variable can increase elaboration in some situations or for some people but decrease it in others. For example, in one study (Petty et al., 1981), three variables were manipulated: (1) personal involvement with the message (low vs. high), (2) message framing (whether conclusions were framed as statements vs. rhetorical questions, and (3) argument quality (strong vs. weak). The topic of the communication advocated that seniors take a comprehensive exam in their major as a requirement for graduation. The study was designed to test the view that arguments framed as rhetorical questions (e.g., “Wouldn’t instituting a comprehensive exam be an aid to those who seek admission to graduate and professional schools?”) rather than as declarative statements would lead to more thinking. If rhetorical questions enhance elaboration, then their use should lead to more persuasion if the message arguments are strong, but less persuasion if the arguments are weak. However, this enhanced elaboration with rhetorical questions should be evident mostly when people are not naturally devoting much effort to processing the message arguments—namely, when communication involvement is low vs. high (Petty et al., 1987). When people are already motivated to process the communication due to high personal involvement, these researchers predicted that the use of rhetorical questions would either have no further effect or even disrupt the normal elaboration. The results of this study supported these predictions. In the current research, we examine the hypothesis that approaching a communication with a hedonic goal would also reverse the typical impact of personal involvement on information processing.

## Compatibility between goal and personal involvement

As just explained, we hypothesized that people having the goal to process in order to gain knowledge would elaborate more under high vs. low involvement conditions whereas those having a hedonic goal would elaborate more under low vs. high involvement conditions. Furthermore, this greater elaboration was predicted to produce attitudes that are stronger and more predictive of behavioral intentions. Therefore, we proposed that a match between goal and involvement (i.e., epistemic goal and high personal involvement and hedonic goal and low personal involvement) would lead to greater communication scrutiny and attitude strength compared to a mismatch of goal and involvement (i.e., epistemic goal and low personal involvement and hedonic goal and high personal involvement). The scrutiny hypothesis is tested in both experiments and the strength hypothesis is tested in Study 2. Also, across two experiments, participants were asked to read messages regarding three different topics and we did not expect that any of these effects would be affected by the use of different topics.

In summary, our assumption was that a match would occur when a person with an epistemic goal received a high personal involvement communication. These conditions match because when a communication involves the self, it is highly adaptive and functional to have accurate information. When a communication is not very self-relevant, this concern is attenuated. Second, our hypothesis is that when participants have a hedonic goal, the motivation is often to escape from the self, and thus a low self-relevant communication is more likely to match one’s desires than a communication high in self-relevance. Under the matching conditions, we predicted that elaboration would be increased over mismatching conditions. Thus, matching would lead to a greater effect of argument quality on attitudes than mismatching. Furthermore, matching (vs. mismatching) was predicted to lead to stronger attitudes (i.e., attitudes more capable of predicting behavioral intentions). Finally, we did not expect the nature of the match (match to high versus low involvement or to epistemic versus hedonic goal) to modify the results.

### Study 1

The main objective of Study 1 was to provide an initial test of whether personal involvement produces different processing effects depending on the person’s goal—epistemic or hedonic. As described shortly, Study 1 first manipulated the goal conditions and then personal involvement. Next, participants read a message with weak or strong arguments about a new consumer product that was going to be on the market. Finally, attitudes toward the product were reported. We expected to observe a three-way interaction among the

manipulated variables. Participants who were given an epistemic goal were expected to show greater elaboration and, in turn, greater argument quality effects in the high (vs. low) personal involvement condition, the typical effect observed in the literature. In contrast, when people had a hedonic goal, we expected that they would scrutinize the message more when personal involvement was relatively low (rather than high), leading to greater argument quality effects under low personal involvement, the opposite of the typical finding.

Furthermore, we expected this 3-way interaction would not be driven exclusively by any specific combination of compatible and incompatible conditions. To examine this, in addition to the traditional three-way interaction result we also report another analysis in which we combined the two conditions for which the prediction was the same into those that “match” (epistemic goal in high involvement and hedonic goal in low involvement) and compared those conditions to those that “mismatched” (epistemic goal in low involvement and hedonic goal in high involvement). Importantly, we did not expect the nature of the match (match to high versus low involvement or to hedonic versus epistemic goal) to modify the results. In this analysis, we expected that the matching condition would show increased message elaboration over the mismatching conditions and expected that this interaction would hold regardless of the nature of the matching. Combining conditions across matching and mismatching factors and including type of matching within this test is a procedure that allows assessing statistically to what extent the type of match makes a difference. Without this supplemental analysis we could not know to what extent type of match would matter (for further details on this procedure, see Briñol et al., 2018; Johnson et al., 2017; Stavradi et al., in press).

## Method

### Participants and design

Participants were 161 (112 women, 36 men, and 13 unreported,  $M_{\text{age}} = 21.23$ ,  $SD = 4.13$ ) undergraduate students from the psychology department at Universidad Autónoma de Madrid (Spain) who participated voluntarily for partial course credit. Participants were randomly assigned to a 2 (Goals: Epistemic vs. Hedonic)  $\times$  2 (Personal Involvement: High vs. Low)  $\times$  2 (Argument Quality: Strong vs. Weak) between-subjects factorial design. The dependent measure was attitudes toward an advocated product. All participants were seated at individual cubicles and carried out all experimental procedures in paper and pencil. All subjects, variables, and measures were reported. Eight participants did not complete all measures. The variation in degrees of freedom in the analyses below reflect these missing. A power

analysis was conducted using G\*Power (Faul et al., 2007). A recent meta-analysis conducted by Carpenter (2015) on 27 studies revealed that the average effect size for the classic Involvement  $\times$  Argument Quality interaction was in the high end of medium according to Cohen's (1988) formula ( $\eta_p^2 = .07$ ). Because no prior research had examined that two-way interaction under the new hedonic goal, we anticipated that the overall effect size for the proposed Matching and Argument Quality interaction may not be as large as the Involvement  $\times$  Argument Quality effect size estimated in the Carpenter meta-analysis. Therefore, we planned for a generic medium effect ( $\eta_p^2 = .06$ ) in this study. The results of the power analysis concluded that the desired sample size for a two-tailed test ( $\alpha = .05$ ) of a two-way (Matching  $\times$  Argument quality) interaction with .80 power was  $N = 128$  participants. To achieve at least that number, we decided to collect as many participants as possible during the academic semester, resulting in a final sample size that was higher than the one required for .8 power (i.e., 161 participants).<sup>1</sup>

### Procedure

Upon entering the laboratory, participants were seated at individual cubicles and told that all experimental procedures would be carried out in paper and pencil. Participants were informed that they were going to take part in a mass media study. All participants expected to be exposed to an advertisement for a product. Participants first received the goal induction. Then, they were led to believe that the product appearing in the advertisement was going to be easily available to them (i.e., high personal involvement) or not (i.e., low personal involvement). After the involvement manipulation, participants received an advertisement for the product composed of either strong or weak arguments. Finally, participants reported their attitudes toward the product, rated the quality of the arguments, and their affect. Then, participants were debriefed, thanked, and dismissed.

### Independent variables

#### Goals

Participants were asked to imagine either a learning or an entertainment scenario. Specifically, half of participants were asked to imagine they were going to watch a documentary to gain knowledge about something whereas the other half were asked to imagine they were going to the movies to be entertained. While waiting to learn or be entertained, they

<sup>1</sup> More participants than 128 were included because more people than we anticipated signed up for the experiment and we decided to include them rather than cancel their participation.

were exposed to an advertisement. In the *epistemic* condition, participants read: “Imagine that you are going to the movies to gain knowledge and then while you are waiting to learn from a documentary you see the following advertisement.” In the *hedonic* condition, participants read: “Imagine that you are going to the movies to be entertained and then while you are waiting to have fun with the movie you see the following advertisement.” Past research has shown that asking people to imagine something can be a useful procedure to transport them to that mindset (e.g., Anderson, 1983; Green et al., 2004).

To further ensure that this manipulation influenced the intended goal, we conducted a pilot test ( $N=92$ ) in which participants were randomly assigned to the epistemic or to the hedonic goal condition. After receiving this induction, participants were asked to report how much learning and how much fun they wanted to have in the following task (they expected to receive a message) on two separate 9-point scales (1 = *not at all*, 9 = *completely*). As predicted, the results showed that participants reported wanting to learn more in the epistemic ( $M=6.07$ ,  $SD=2.02$ ) than in the hedonic ( $M=4.79$ ,  $SD=2.25$ ) condition,  $t(90)=-2.87$ ,  $p=.005$ . Furthermore, participants reported seeking more fun in the hedonic ( $M=5.60$ ,  $SD=2.08$ ) than in the epistemic condition ( $M=4.51$ ,  $SD=1.95$ ) condition,  $t(90)=2.58$ ,  $p=.012$ .

### Personal involvement

After reading the goal induction, participants in the high involvement condition were told that the product that was to be featured in the advertisement was going to be produced and sold soon in their own country. In the low involvement condition, participants were told that the product would possibly be produced and sold in a different country but without a specified release date (for conceptually similar inductions of involvement, see Briñol et al., 2015; Petty et al., 1983).

### Argument quality

Participants were asked to read an advertisement arguing in favor of new snack bars. Critically, this communication contained either strong or weak arguments, depending on the condition to which the participant had been assigned. This manipulation was designed to assess the amount of information processing in which participants were engaged. Within the attitude change literature, the manipulation of argument quality (and the subsequent impact on the attitudes reported) has been used in numerous studies to examine the extent of information processing induced under different conditions (see Petty & Cacioppo, 1986; Carpenter, 2015). Because the argument quality manipulation is used to assess the amount (vs. direction) of message elaboration, all arguments need

to argue for the same position and vary only in the strength of the merits they include. Because both sets of arguments are in favor of the issue, they may be equally persuasive if people do not think about their implications. Individuals not thinking about the message carefully may respond simply to the number of arguments presented or their initial gut reaction to the proposal. The more attention paid to the specific information provided, however, the greater the difference in subsequent attitudes to strong versus weak arguments.

The strong arguments made claims such as *FFF Bars* contain special ingredients that decrease anxiety, reduce risk for cancer, and elevate mood. The weak arguments in favor of the bars made claims such as that if you don't eat *FFF Bars*, someone else will, and that people should eat *FFF Bars* before ants crawl over them and make them inedible. Again, both messages were equivalent in length, but differed in persuasiveness.

## Dependent measure

### Attitudes

Participants' attitudes toward *FFF Bars* were assessed with three 9-point semantic differential scales (dislike—like, good—bad, not recommended—strongly recommended). Ratings were intercorrelated ( $\alpha=.55$ ), and they were averaged to create a composite attitude index. The attitude index was scored such that higher numbers indicate more favorable attitudes toward the product.

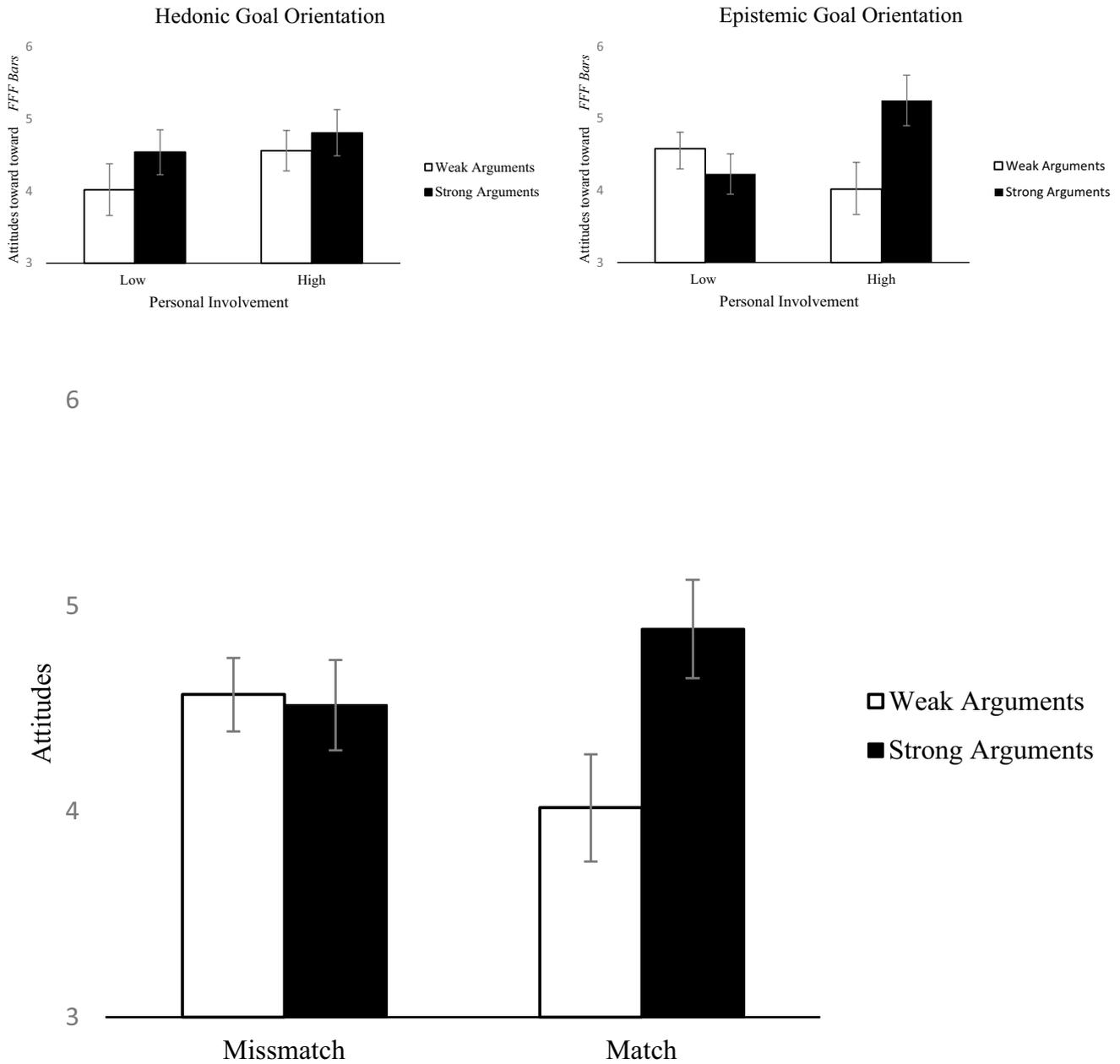
### Ancillary measures

After the attitude measure, we assessed the perceived quality of arguments by asking participants to rate how credible, compelling, and persuasive the arguments were using a 9-point likert scale. Item-ratings were intercorrelated ( $\alpha=.71$ ), thus were averaged to create a composite measure of perceived quality of the message. Also, we measured affect by asking participants to rate their feelings at the end of the experimental session using two 9-point semantic differential scales (positive—negative, pleasant—unpleasant). Ratings were inter-correlated ( $r=.79$ ), so they were averaged to create a composite index. The index was scored such that higher numbers indicate feeling more negative affect.

## Results

### Attitudes

A 2 (Goals: Epistemic vs. Hedonic)  $\times$  2 (Personal Involvement: High vs. Low)  $\times$  2 (Argument Quality: Strong vs. Weak) ANOVA on attitudes revealed a significant



**Fig. 1** Attitudes toward FFF bars as a function of goal orientation, personal involvement and argument quality in Study 1 (top panel). Attitudes toward FFF bars as a function of argument quality and matching in Study 1 (bottom panel)

three-way interaction among the independent variables,  $F(1,153) = 4.25, p = .04, \eta_p^2 = .03$  (Fig. 1, top panel).

Decomposition of this three-way interaction revealed that the pattern of results varied as a function of Goals. Among participants in the epistemic goal condition, the Personal Involvement x Argument Quality interaction was significant,  $F(1,153) = 6.15, p = .01, \eta_p^2 = .04$ . In this and subsequent studies we use Bonferroni adjustments to obtain the simple effects. In the high personal involvement condition, participants reported more favorable attitudes toward FFF

bars in the strong ( $M = 5.25, SD = 1.59$ ) than in the weak argument condition ( $M = 4.02, SD = 1.68$ ),  $F(1,153) = 7.31, p = .01, \eta_p^2 = .05$ . On the other hand, in the low personal involvement condition, there were no significant differences. In addition, the difference between high personal involvement ( $M = 4.65, SD = 1.72$ ) from low personal involvement ( $M = 4.41, SD = 1.14$ ) was only significant for strong arguments,  $F(1,153) = 5.03, p = .03, \eta_p^2 = .03$ , but not for weak arguments,  $F(1,153) = 1.57, p = .21, \eta_p^2 < .01$ . In contrast, for those in the hedonic goal condition, the Involvement X

Argument Quality interaction, though not significant, was in the opposite direction,  $F(1,153) = .18$ ,  $p = .67$ ,  $\eta_p^2 = .00$ .<sup>2</sup>

In order to examine whether the direction of the discrepancy made a difference and to provide a statistical test of whether type of matching (i.e., Match to Involvement) mattered, as explained earlier we grouped the predicted matching conditions (i.e. people in the epistemic and high involvement condition and people in the hedonic and low involvement condition) and the predicted mismatching conditions (i.e. people in the epistemic goal and low involvement condition and people in the hedonic goal and high involvement condition) into a Matching vs Mismatching independent variable. We also added a factor to account for the type of matching it was (i.e., match to high or low involvement or match to epistemic or hedonic goal).

Consistent with the three way interaction just reported, the 2 (Matching: Matching vs. Mismatching)  $\times$  2 (Argument Quality: Strong vs. Weak)  $\times$  2 (Match to Involvement: Match to high involvement vs Match to low involvement) ANOVA revealed that the predicted two-way interaction between Argument Quality and Matching was significant,  $F(1,153) = 4.25$ ,  $p = .04$ ,  $\eta_p^2 = .03$ , and that interaction was not further qualified by the Match to Involvement (i.e., matching to low involvement or matching to high involvement),  $F(1,153) = .02$ ,  $p = .90$ ,  $\eta_p^2 = .00$ . When the same analysis was conducted swapping Match to Goal for Match to Involvement, the three-way interaction was also not significant,  $F(1,153) = 2.12$ ,  $p = .15$ ,  $\eta_p^2 = .01$ .

As illustrated in Fig. 1 (bottom panel), for the matching condition, participants reported more favorable attitudes toward the product in the strong arguments condition ( $M = 4.89$ ,  $SD = 1.53$ ) than in the weak arguments condition ( $M = 4.02$ ,  $SD = 1.63$ ),  $F(1,153) = 7.46$ ,  $p = .007$ ,  $\eta_p^2 = .05$ . For the mismatching condition, there was no difference between those who read the strong arguments ( $M = 4.52$ ,  $SD = 1.33$ ) and those who read weak arguments ( $M = 4.57$ ,  $SD = 1.16$ ),  $F(1,153) = .02$ ,  $p = .88$ ,  $\eta_p^2 < .001$ .

### Ancillary measure

A 2 (Goals: Epistemic vs. Hedonic)  $\times$  2 (Personal Involvement: High vs. Low)  $\times$  2 (Argument Quality: Strong vs. Weak) ANOVA on perceived argument quality revealed that the argument quality manipulation was successful. As predicted, participants found the strong message as more persuasive ( $M = 3.85$ ,  $SD = 1.72$ ) than the weak message ( $M = 2.60$ ,  $SD = 1.57$ ;  $F(1,153) = 24.07$ ,  $p < .001$ ,  $\eta_p^2 = .14$ ).

<sup>2</sup> Decomposition by personal involvement did not revealed a two-way interaction between Goal and Argument quality under high involvement,  $F(1, 153) = 2.34$ ,  $p = .13$ ,  $\eta_p^2 = .01$ . Under low involvement, the interaction between Goal and Argument quality was also not significant,  $F(1, 153) = 1.91$ ,  $\eta_p^2 = .15$ ,  $\eta_p^2 = .03$ .

A two way interaction between Goals and Argument Quality also emerged  $F(1,153) = 4.28$ ,  $p = .04$ ,  $\eta_p^2 = .03$ . In the epistemic condition participants who received the strong message rated the arguments as more compelling ( $M = 4.17$ ,  $SD = 1.70$ ) than did those receiving the weak message ( $M = 2.37$ ,  $SD = 1.55$ ),  $F(1,153) = 24.16$ ,  $p < .001$ ,  $\eta_p^2 = .14$ . In the hedonic condition this difference between the strong ( $M = 3.54$ ,  $SD = 1.69$ ) and the weak ( $M = 2.83$ ,  $SD = 1.58$ ) message was relatively smaller, though still in the same direction,  $F(1,153) = 4.05$ ,  $p = .05$ ,  $\eta_p^2 = .03$ . Thus, the strong arguments were always seen as more compelling than the weak ones although that difference was even more pronounced in the epistemic conditions. Also as expected, the analyses revealed no main effects of the Goals, Personal Involvement or Argument Quality inductions and no interactions on reported affect, all  $F_s < 1.03$ , both  $p_s > 0.31$ , both  $\eta_p^2 < .00$ .

### Discussion

The results of Study 1 provide the first evidence suggesting that different goals can moderate the classic effect of the ELM. As expected, the 3-way interaction showed that the use of goals was found to either increase or decrease the cognitive elaboration of a message depending on the personal relevance of the communication. In Study 1 we replicated previous studies consistent with the ELM model but only for those who were seeking knowledge but not for those who were seeking entertainment.

Study 1 also suggested that goals and personal involvement can work in conjunction to affect message processing and persuasion, matching goals and personal involvement led to larger effects of argument quality than did mismatching those two variables. As a result, when arguments were strong, matching goals to involvement tended to increase persuasion. However, when arguments were weak, matching goals to involvement tended to decrease persuasion. As predicted, argument quality effects increased under matching conditions (high involvement and epistemic goal + low involvement and hedonic goal) compared to the mismatching conditions (high involvement and hedonic goal + low involvement and epistemic goal). That is, when goals and personal involvement matched (vs. mismatched) participants discriminated between strong and weak arguments more suggesting that they processed the communication more carefully. Notably, the matching effect was present regardless of whether the match involved high or low involvement or hedonic or epistemic goals.

## Study 2

Study 1 demonstrated that goals can moderate the effect of personal involvement on the amount of thinking invested in processing persuasive communications. Study 2 was designed to replicate and further extend the findings of the previous study, so we changed the attitude objects, the goal manipulation and the personal involvement manipulation to generalize across materials and to change any potential effect due to the specific inductions used in the first study.

As in the previous study, Study 2 first manipulated the goal conditions and then personal involvement. Next, participants read a message with weak or strong arguments about one of two different attitudinal objects. We used two different topics to gain generalization power, but we did not expect differences as a function of topic. Finally, attitudes and behavioral intentions toward the topic of the message, were reported. Furthermore, Study 2 was designed to examine an important potential consequence of matching—attitudes predicting behavioral intentions. This consequence was chosen because the prediction of behavior is a key reason attitudes are a valuable concept (Ajzen, 2012; Ajzen & Fishbein, 1980; Sheeran, 2002).

We again expected an interaction between Goals, Personal Involvement, and Argument Quality. As in Study 1, this three-way interaction would be comparable to a more conceptually direct two-way interaction between Matching and Argument Quality showing a greater effect of argument quality in the matching conditions than in the mismatching conditions. Finally, we hypothesized that because people in the matching conditions would elaborate the communications more than those in the mismatching conditions, the attitudes of participants in those conditions would show greater prediction of attitude-relevant behavioral intentions. As noted, we did not expect topic to moderate these effects.

## Method

### Participants and design

Participants were 287 (226 women, 58 men, and 3 unreported,  $M_{\text{age}} = 21.15$ ,  $SD = 2.72$ ) undergraduate students from the psychology department at Universidad Autónoma de Madrid (Spain) who participated voluntarily in exchange for partial course. Participants were randomly assigned to the cells of a 2 (Goal: Epistemic vs. Hedonic)  $\times$  2 (Personal Involvement: High vs. Low)  $\times$  2 (Topic: Vegetables vs. Green)  $\times$  2 (Argument Quality: Strong vs. Weak) between-subjects factorial design. Attitudes and behavioral intentions toward the proposal served as dependent measures. All participants were seated at individual cubicles and carried out all experimental procedures in paper and pencil. All

subjects, variables, and measures were reported. Eighteen participants did not complete all measures. The variation in degrees of freedom in the analysis below reflect these missing. After learning from the initial study that the Matching  $\times$  Argument Quality interaction effect size obtained was  $\eta_p^2 = .04$ , we also planned for the same effect size in this second study. The desired sample size for a two-tailed test ( $\alpha = .05$ ) of the predicted 2-way Matching  $\times$  Argument Quality interaction with .80 power was a total of  $N = 191$ . This was achieved when collapsing across topics. That is, in the end, we obtained a total sample of 287.<sup>3</sup>

### Procedure

The procedure was conceptually the same as in Study 1 with some variations in the specific inductions of the variables. Upon entering the laboratory, participants were seated at individual cubicles and told that all experimental procedures would be carried out in paper and pencil. Participants were informed that they were going to take part in a mass media study. Before beginning, participants were provided with brief descriptions of what makes a good editorial. This instruction was used to manipulate the epistemic versus hedonic goal. Next, participants' personal involvement was manipulated. Then, participants received a persuasive message composed of either strong or weak arguments about consuming more vegetables or about using green as a university color. Before leaving, participants completed the dependent and ancillary measures and were then debriefed, thanked, and dismissed.

### Independent variables

#### Goals

The participants' goal in reading the message was manipulated by telling them to adopt either a learning (epistemic) or an entertainment (hedonic) goal. Specifically, to induce an *epistemic goal*, participants read that: "The goal of this editorial is for people to learn and have an informative and knowledgeable experience. Please read the following information in order to have a clear and accurate view." In contrast, to induce a *hedonic goal*, participants read that: "The goal of this editorial is for people to enjoy and have a pleasurable and fun experience. Please read the following

<sup>3</sup> More participants than 191 were included because more people than we anticipated signed up for the experiment and we decided to include them rather than cancel their participation. Analyzing separately by topics, the three-ways interactions are significant for each on the measure of attitudes. For the increasing vegetables topic,  $F(1, 140) = 11.03$ ,  $p < .001$ ,  $\eta_p^2 = .07$ ; for the color green topic increasing vegetables topic,  $F(1, 129) = 5.28$ ,  $p = .02$ ,  $\eta_p^2 = .04$ .

information in order to enjoy and have fun with the experience.” Similar inductions have been used to manipulate instrumental vs. hedonic goals (Côte, 2005; Higgins et al., 2010) as well as cognitive vs. affective mindsets (See et al., 2013).

### Personal involvement

Participants in the high involvement condition were told that the message had to do with their self-concept whereas those in the low involvement condition were told that the message had to do with vegetables (for a similar induction of personal involvement, see Briñol et al., 2006). Specifically, in the *high personal involvement* condition, participants were told: “You are about to read an article about your self-concept, your personal dietary habits, and the way you see your world”. In the *low personal involvement* condition, participants were told: “You are about to read an article about the characteristics and properties of different plants and vegetables.” To further emphasize personal involvement, in the high involvement condition, the title of the communication was “*Research about the Self-Concept*,” and in the low involvement condition, the title of the communication was “*Research about Vegetables*.” Personal involvement was also manipulated by two simultaneous variations in the message framing. First, participants in the high personal involvement condition were told that they were among a very few participants taking part in the study. Second, participants were also told that the university was going to raffle off a fellowship for participants in the study because their participation was particularly valuable. Thus, these individuals were expected to be highly personally involved with the study and the essay evaluation task. In contrast, participants in the low personal involvement condition were told that were in a very large group of people being asked to complete the survey and they also read that the study was one of many offered to students. Furthermore, no incentive was mentioned. Thus, these individuals were expected to have little personal involvement with the essay evaluation task (for similar inductions of personal involvement, see Petty et al., 1980; Tormala et al., 2002; for a general review of the concept of personal involvement, see Petty & Cacioppo, 1990).

### Topic

Half of the participants were asked to read a message about consuming more vegetables or about using green as a university color. Participants responded to these two different topics at two different points in time (i.e., in separate sessions), but we combine the data to obtain maximum statistical power and because the involvement and

goal inductions and dependent measures were the same. Importantly, we did not expect message topic (or session) to moderate any effects when considered as a factor, but if it did, each topic will be analyzed separately.

### Argument quality

Half of the participants were required to read a message composed of either strong or weak arguments arguing in favor of vegetable consumption or using green as the university color. Participants were randomly assigned to one of the two conditions. As in Study 1, this manipulation was designed to assess the amount of information processing in which participants were engaged.

The message arguing in favor of vegetable consumption contained five strong or weak arguments. The gist of the strong arguments in favor of vegetable consumption were that: (1) vegetables have higher benefits than fruits to facilitate digestion, (2) eating vegetables improves the smoothness of skin and hair, (3) vegetables have more fiber than any other foods, (4) people absorb greater vitamins when food contains vegetables, and (5) vegetables are especially appropriate for periods of high demand. In contrast, the gist of the weak arguments were that: (1) vegetables are becoming popular, (2) they are served in lots of weddings, (3) vegetables are colorful and attractive, (4) they are sold fast, and (5) vegetable displays are good at catching attention. Previous research pre-tested these arguments to be strong and weak (Briñol et al., 2006).

The editorial (persuasive message) that the participants received in favor of using green as the university institutional color also contained either strong or weak arguments. Unlike typical U.S. universities, university colors in Spain are an unfamiliar topic for most students. In fact, most students do not know their institutional color and have no prior opinion about it. The strong arguments claimed that green enhances student performance and well-being in a variety of important areas (e.g., creativity, concentration, etc.). The weak arguments claimed that green appeals to parents, matches chalkboard color, and is growing in popularity. The quality of these arguments was pilot tested in prior research (Horcajo, Briñol, et al., 2010; Horcajo, Petty, et al., 2010; 2014).

Again, it is important to note that both strong and weak arguments argued *in favor of* increasing vegetable consumption or using the color green as the university institutional color, but strong arguments provided more compelling reasons than did the weak ones. This manipulation should be clearly distinguished from other forms of message variations, such as arguing either in favor of or against the proposal. Also, importantly, both messages were equivalent in length.

## Dependent measures

### Attitudes

Participants' attitudes toward the two attitude object were assessed with the same three 9-point differential scales used in Study 1 (dislike—like, good—bad, not recommended—strongly recommended). Ratings were inter-correlated ( $\alpha = .80$ ), so they were averaged to create a composite index. The index was scored such that higher numbers indicate more favorable attitudes toward the topics.

### Behavioral intentions

Two questions for each topic assessed participants' behavioral intentions with respect to each attitude object: "To what extent would you advocate in favor of increasing vegetable consumption/ green as the university color?" and "How much money would you be willing to donate to campaigns promoting vegetable consumption/ green as the university color?" The first question was accompanied by scales anchored by 1 = not at all likely and 9 = extremely likely, whereas the second one was scored such that 1 was "a low amount of money" and 14 was "a high amount of money." Once standardized, the items were averaged to form a behavioral intention index ( $r = 20$ ).

### Ancillary measures

Participants were asked to report how persuasive the arguments were using the same three items as in Study 1. After the attitude and behavioral intentions measures, we measured the perceived quality of arguments by asking participants to rate how credible, compelling, and persuasive the arguments were using a 9-point likert scale. Item-ratings were intercorrelated ( $\alpha = .90$ ), thus were averaged to create a composite measure of perceived quality of the message.

## Results

### Attitudes

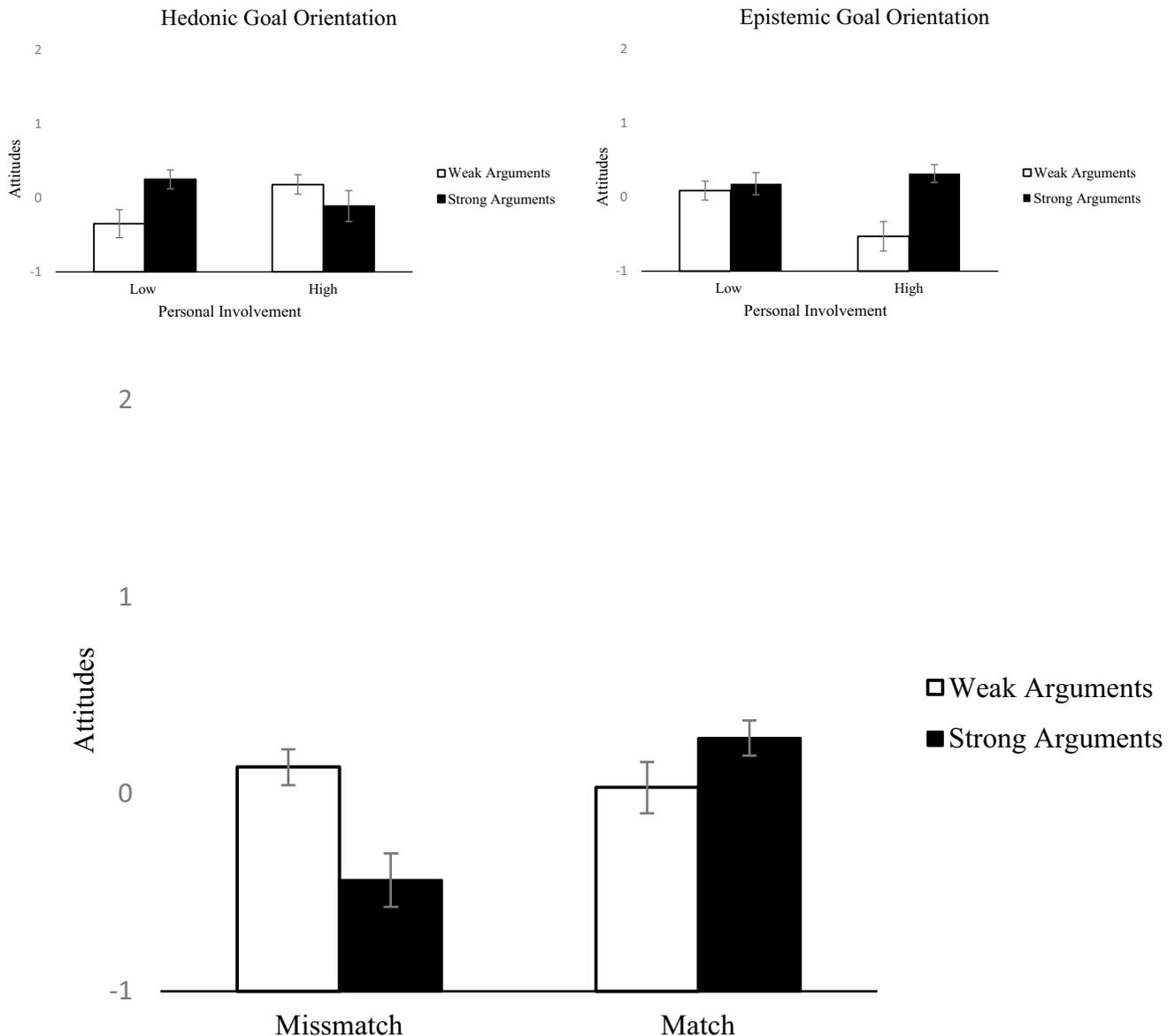
Before aggregating the information from the two topics, we standardized the dependent measures, and conducted a 2 (Goals: Epistemic vs. Hedonic)  $\times$  2 (Personal Involvement: High vs. Low)  $\times$  2 (Argument quality: Strong vs. Weak)  $\times$  2 Topic (Vegetables vs. Green) ANOVA on attitudes. This analysis revealed a main effect of argument quality on attitudes,  $F(1,269) = 7.61$ ,  $p = .01$ ,  $\eta_p^2 = .03$ , such that participants reported more favorable attitudes in the strong ( $M = .16$ ,  $SD = .94$ ) than in the weak arguments ( $M = -.15$ ,  $SD = 1.03$ ) condition. Most relevant, a significant three-way

Goals  $\times$  Involvement  $\times$  Argument Quality interaction among the independent variables emerged,  $F(1,269) = 12.22$ ,  $p = .001$ ;  $\eta_p^2 = .04$  (Fig. 2, top panel). This interaction was not moderated by topic  $F(1,269) = .05$ ,  $p = .83$ ;  $\eta_p^2 = .000$ .

Decomposition of this three-way interaction revealed that the pattern of results varied as a function of the goal manipulation. Importantly, for those in the epistemic goal condition, results showed the traditional Personal Involvement  $\times$  Argument Quality interaction,  $F(1,269) = 5.55$ ,  $p = .02$ ,  $\eta_p^2 = .02$ . In the high personal involvement condition, participants reported more favorable attitudes toward the attitudinal object in the strong ( $M = .32$ ,  $SD = 0.70$ ) than in the weak argument condition ( $M = -0.53$ ,  $SD = 1.20$ ),  $F(1,269) = 13.59$ ,  $p = .00$ ,  $\eta_p^2 = .005$ . On the other hand, in the low personal involvement condition, the difference between strong ( $M = .18$ ,  $SD = .91$ ) and weak ( $M = .10$ ,  $SD = .80$ ) arguments was not significant,  $F(1,269) = .15$ ,  $p = .70$ ,  $\eta_p^2 = .00$ . Among participants in the hedonic goal condition, the Personal Involvement  $\times$  Argument Quality interaction was significant,  $F(1,269) = 6.7$ ,  $p = .01$ ;  $\eta_p^2 = .02$ , and in a direction opposite to that in the epistemic goal condition. In the low personal involvement condition, participants reported more favorable attitudes toward the attitudinal object in the strong ( $M = .25$ ,  $SD = .78$ ) than in the weak argument condition ( $M = -.35$ ,  $SD = 1.14$ ),  $F(1,269) = 6.42$ ,  $p = .01$ ,  $\eta_p^2 = .02$ . On the other hand, in the high personal involvement condition, the difference between strong ( $M = -.12$ ,  $SD = 1.24$ ) and weak ( $M = .18$ ,  $SD = .80$ ) arguments was not significant,  $F(1,269) = 1.26$ ,  $p = .26$ ,  $\eta_p^2 = .00$ .<sup>4</sup>

We created a new variable where we could combine the conditions that matched or mismatched using the same procedure as in Study 1. Consistent with the three-way interaction just reported, the 2 (Matching: Matching vs. Mismatching)  $\times$  2 (Argument Quality: Strong vs. Weak)  $\times$  2 (Match to Involvement: Match to high involvement vs Match to low involvement) ANOVA revealed that the predicted two-way interaction between Argument Quality and Matching was significant,  $F(1,269) = 12.22$ ,  $p = .001$ ;  $\eta_p^2 = .04$ , and that interaction was not further qualified by the Match to Involvement,  $F(1,269) = 1.78$ ,  $p = .18$ ;  $\eta_p^2 = .007$ , or topic,  $F(1,269) = .05$ ,  $p = .83$ ;  $\eta_p^2 = .00$ . When the same analysis was conducted swapping Match to Goal for Match to

<sup>4</sup> Decomposition by personal involvement revealed a two way interaction between Goal and Argument Quality for those in the high-personal involvement condition,  $F(1, 269) = 11.62$ ,  $p = .00$ ,  $\eta_p^2 = .04$ . The difference between strong ( $M = .10$ ,  $SD = 1.02$ ) and weak ( $M = -.17$ ,  $SD = 1.07$ ) arguments was only significant in the epistemic goal condition,  $F(1,269) = 13.59$ ,  $p = .00$ ,  $\eta_p^2 = .05$ , but not in the hedonic goal condition,  $F(1, 269) = 1.26$ ,  $p = .26$ ,  $\eta_p^2 = .00$ . In the low-personal involvement condition, the two-way interaction between Goal and Argument quality was not significant,  $F(1, 269) = .62$ ,  $p = .43$ ,  $\eta_p^2 = .00$ .



**Fig. 2** Attitudes toward vegetables consumption and green as the university color as a function of goal orientation, personal involvement and argument quality in Study 2 (top panel). Attitudes toward vegeta-

bles consumption and green as the university color as a function of argument quality and matching in Study 2 (bottom panel)

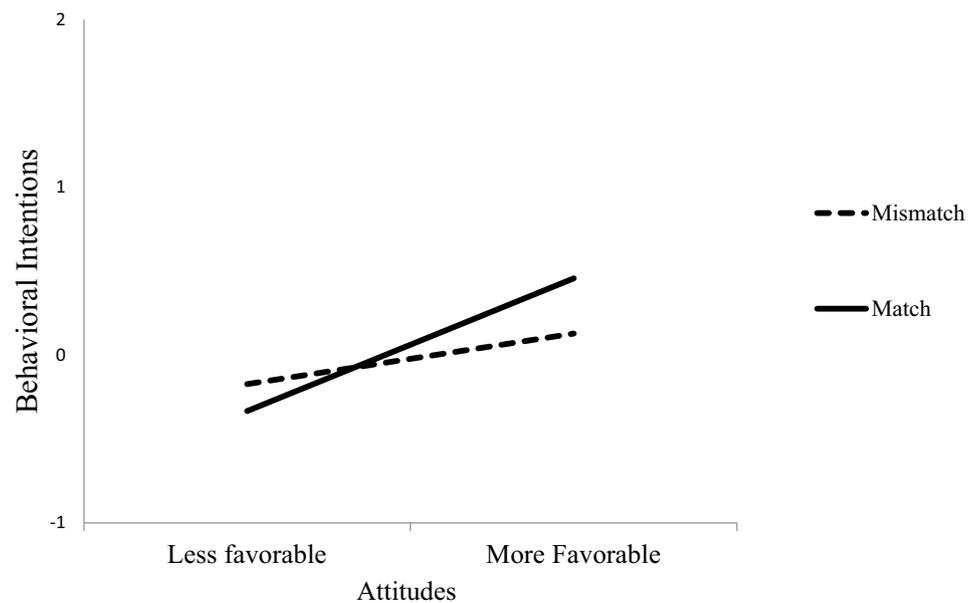
Involvement, the three-way interaction was also not significant,  $F(1,269) = .03$ ,  $p = .87$ ,  $\eta_p^2 = .000$ .

As illustrated in Fig. 2 (bottom panel), among participants in the matching condition, those who received the strong message reported more favorable attitudes ( $M = .29$ ,  $SD = .74$ ) than did those who received the weak message ( $M = -.44$ ,  $SD = 1.17$ ),  $F(1,269) = 19.37$ ,  $p < .001$ ,  $\eta_p^2 = .07$ . Among participants in the mismatching condition, there was no statistically significant difference between those receiving the strong ( $M = .03$ ,  $SD = 1.09$ ) and those receiving the weak ( $M = .14$ ,  $SD = .79$ ) message,  $F(1,269) = .28$ ,  $p = .60$ ,  $\eta_p^2 = .001$ .

### Behavioral intentions

Before aggregating the information from the two topics, we standardized the dependent measures and conducted a 2 (Goals: Epistemic vs. Hedonic)  $\times$  2 (Personal Involvement: High vs. Low)  $\times$  2 (Argument quality: Strong vs. Weak)  $\times$  2 Topic (Vegetables vs. Green) ANOVA on behavioral intentions. This analysis revealed a significant main effect of Argument Quality on intentions  $F(1,271) = 10.92$ ,  $p = .001$ ,  $\eta_p^2 = .04$ . The Argument Quality main effect was not further qualified by topic,  $F(1,271) = .84$ ,  $p = .36$ ,  $\eta_p^2 = .003$ .

**Fig. 3** Behavioral intentions as a function of attitudes toward vegetables and green as the university color and matching in Study 1



This ANOVA did not produce a significant Goals X Involvement X Argument Quality interaction,  $F(1,271) = 1.17$ ,  $p = .28$ ,  $\eta_p^2 = .004$ . However, an important prediction for this experiment was that if matching increases elaboration, then matching would be expected to enhance the extent to which attitudes predicted behavioral intentions. To examine this, we regressed behavioral intentions on attitudes, matching, the Attitudes x Matching interaction and the Attitudes X Matching X Match to Involvement interaction using the procedure advocated by Hayes (2013). This regression equation showed that attitudes predicted intentions toward vegetable consumption overall,  $B = .28$ ,  $t(281) = 6.55$ ,  $p < .0001$ . More importantly, the Attitude x Matching interaction was also significant,  $B = .25$ ,  $t(281) = 2.84$ ,  $p = .005$ . As predicted, this interaction revealed that attitudes were a better predictor of intentions in the matching,  $B = .40$ ,  $t(281) = 6.81$ ,  $p < .001$ ; than in the mismatching conditions  $B = .15$ ,  $t(281) = 2.37$ ,  $p = .02$  (see Fig. 3). This was not further moderated by Match to Involvement  $B = .31$ ,  $t(277) = 1.77$ ,  $p = .08$ , Match to Goal,  $B = .22$ ,  $t(281) = 1.28$ ,  $p = .20$  or by Topic,  $B = .01$ ,  $t(281) = .06$ ,  $p = .95$ .

### Ancillary measures

As predicted, the 2 (Goals: Epistemic vs. Hedonic)  $\times$  2 (Personal Involvement: High vs. Low)  $\times$  2 (Argument Quality: Strong vs. Weak)  $\times$  2 Topic (Vegetables vs. Green) ANOVA on perceptions of arguments revealed a significant main effect of Argument Quality on perceived quality. As predicted, participants' rated the strong arguments as more compelling ( $M = .47$ ,  $SD = .72$ ) than the weak arguments ( $M = -.45$ ,  $SD = 1.02$ ,  $F(1,271) = 75.44$ ,  $p < .001$ ,  $\eta_p^2 = .22$ ).

No other effects were significant ( $p$ 's  $> .18$ ), revealing that the compelling version of the message was seen as more convincing that the weak one regardless of what goal was primed.

### Discussion

Consistent with the Study 1, Study 2 also provided evidence suggesting that different goals can moderate the classic effect of personal involvement found in prior research. That is, the use of goals was found to either increase or decrease the cognitive elaboration of a message depending on the personal relevance of the communication. In Study 2 we replicated previous studies consistent with the ELM model for those who were seeking knowledge and showed the reverse results for those who were seeking entertainment using different goals inductions in order to avoid potential confounds. When the message was of high personal involvement and recipients were naturally processing the statement form of the message diligently, the use of an epistemic goal enhanced thinking when it was personally relevant to people: a message with strong arguments became more persuasive and a message with weak became less persuasive. On the other hand, when people were had a hedonic goal to process the information greater processing occurred when the message was low rather than high in personal relevance to people. Also, these effects held for both topics.

A unique finding of Study 2 was that, we found that the compatibility between the goals and the personal involvement led to stronger attitudes in guiding behavioral intentions than mismatching. Thus, matching (vs. mismatching) led not only to more elaboration but also to more

consequential attitudes. We also found these effects were not driven by topic.

## General discussion

Across two experiments we demonstrated that increasing the personal involvement of a message can either increase or decrease message processing depending on the person's goal in reading the message. People who were processing with an epistemic goal were shown to elaborate more (i.e., larger argument quality effect) under high vs. low personal involvement conditions. In contrast, for those who were processing in order to have fun or be entertained (hedonic goal condition), there was reduced elaboration (i.e., smaller argument quality effect) under high vs. low personal involvement conditions. In order to increase power and to analyze if the interaction was moderated by the study, we collapsed across Studies 1 and 2 to examine the overall pattern. Before aggregating the information from the two experiments, we standardized the dependent measures, and included study as a factor. The three-way interaction between Goals, Personal Involvement, and Argument Quality was significant  $F(1,422) = 16.36, p < .001, \eta_p^2 = .04$ , and this three-way interaction was not further moderated by Study;  $F(1,422) = .11, p = .90, \eta_p^2 = .001$ . As illustrated in Fig. 4, this three way interaction emerged because in the epistemic goal condition, a significant Personal Involvement X Argument Quality interaction [ $F(1,422) = 25.39, p = .00, \eta_p^2 = .01$ ] revealed that argument quality mattered more in the high than low involvement condition. However, in the hedonic goal condition, a significant Personal Involvement X Argument Quality interaction [ $F(1,422) = 102.13, p = .00, \eta_p^2 = .03$ ] revealed that argument quality mattered more in the low than in the high involvement condition.<sup>5</sup>

As in the prior experiments, we created a new variable where we could combine the conditions that matched or mismatched. The 2 (Matching: Matching vs. Mismatching) X 2 (Argument Quality: Strong vs. Weak) X 2 (Match to Involvement: Match to high involvement vs Match to low involvement) ANOVA revealed, consistent with the three-way interaction just reported, the predicted two-way interaction between Argument Quality and Matching on attitudes,  $F(1,422) = 16.36, p < .001, \eta_p^2 = .04$ , and

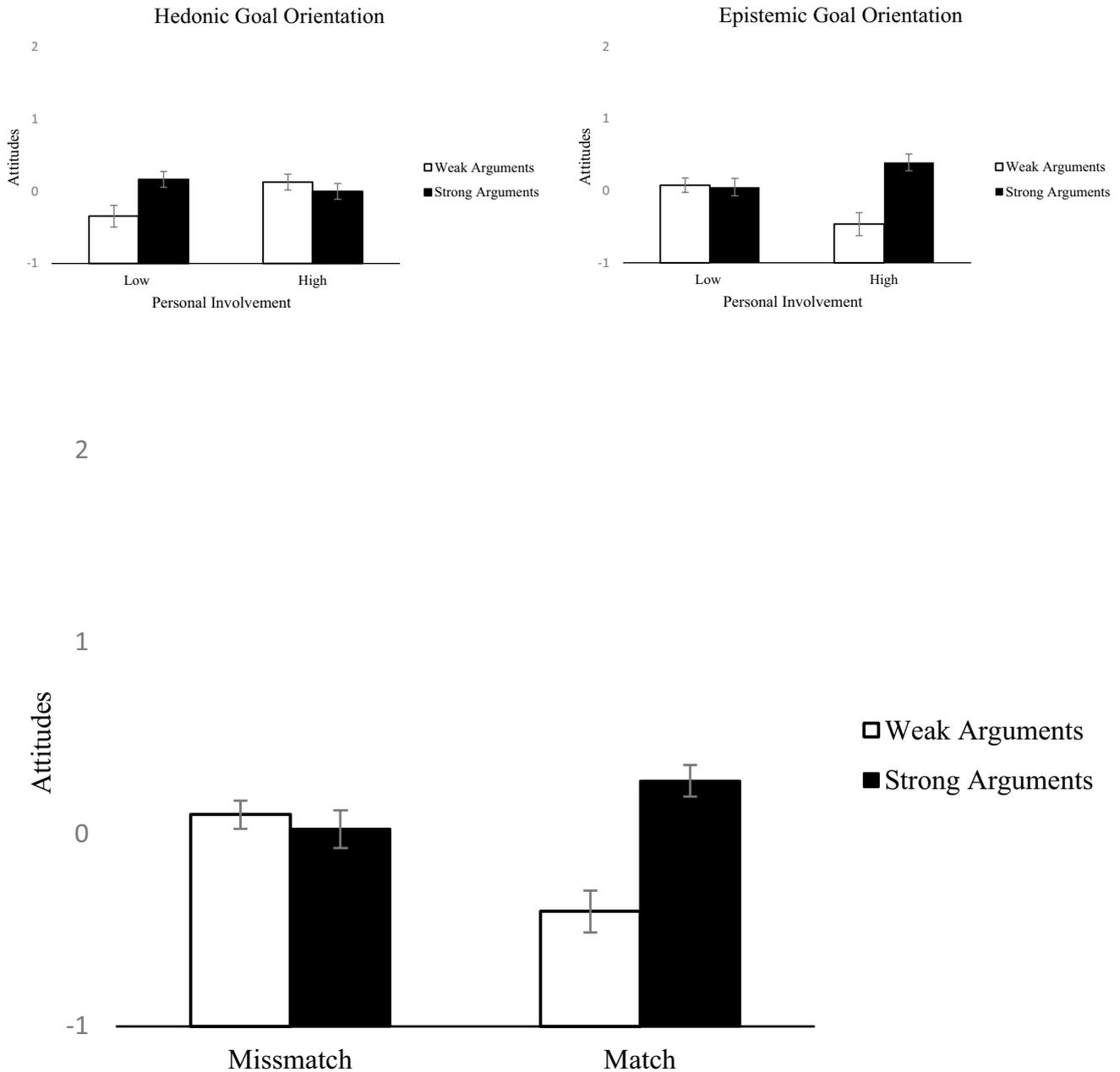
that interaction was not further qualified by the Match to Involvement,  $F(1,422) = 1.37, p = .24, \eta_p^2 = .003$  or Match to Goal,  $F(1,422) = .47, p = .49, \eta_p^2 = .001$ , or by Study  $F(1,422) = .11, p = .89, \eta_p^2 = .001$ .

In Study 2 we also measured behavioral intentions toward the topics. Results showed that attitudes toward the topics predicted intentions to participate and donate money in campaigns promoting the consumption of vegetables or using green as the university color. More importantly, results also showed that matching a person's goal to correct level of personal involvement increased the prediction of behavioral intentions by attitudes. This finding is consistent with an elaboration interpretation in that attitudes based on careful thought are predicted to guide behavior better than those that are not based as much on elaboration. Study 2 showed that the effect of matching on elaboration generalized across different study materials, and inductions and also demonstrated that matching can lead to stronger attitudes across two different attitude topics.<sup>6</sup>

The results of the present research not only extend understanding of when high versus low personal involvement will enhance information processing but might also explain the results of some prior research. In particular, the

<sup>6</sup> In the interests of disclosing our file drawer, we conducted one additional experiment in this line of research. In this study, we used a different population: Journalism students rather than Psychology students. Although we expected to collect a total of about 20 participants per condition, in this study we ended up with just a very small sample by the end of the semester. Specifically, only 56 students participated and were randomly assigned to the cells of a (Goal: Epistemic vs. Hedonic) X 2 (Personal Involvement: High vs. Low) X 2 (Argument Quality: Strong vs. Weak) between-subjects factorial design. The topic was the same as one of the two topics used in Study 2 (vegetables). The 2 (Goal: Epistemic vs. Hedonic) X 2 (Personal Involvement: High vs. Low) X 2 (Argument Quality: Strong vs. Weak) ANOVA revealed that the predicted three-way interaction was not significant,  $F(1, 48) = .16, p = .69, \eta_p^2 = .003$ . Importantly, when we collapsed this data set with the two studies reported in the main text and the study described previously, all the key effects remained significant. Before aggregating the information from the three data sets, we standardized the dependent measures, and included study as a factor. Results of a 2 X 2 X 2 X 3 (Study) ANOVA revealed a significant three-way interaction between goal to process, personal relevance and argument quality condition  $F(1, 472) = 5.12, p = .02, \eta_p^2 < .01$ , and this three-way interaction was not further moderated by Study;  $F(1, 472) = .71, p = .55, \eta_p^2 = .004$ . Furthermore, a follow up 2 (Matching: Matching vs. Mismatching) X 2 (Argument Quality: Strong vs. Weak) X 2 (Match to Involvement: Match to high involvement or Match to low involvement) X 3 (Study, 1, 2, or 3) ANOVA revealed that the predicted two-way interaction between Argument Quality and Matching was significant,  $F(1, 472) = 5.12, p = .02, \eta_p^2 < .01$ , and this two-way interaction was not further moderated by match to Involvement;  $F(1, 472) = .06, p = .80, \eta_p^2 = .00$ , or study;  $F(1, 472) = .71, p = .55, \eta_p^2 = .004$ . A separate analysis also showed that the significant two-way interaction between Argument Quality and Matching was not moderated by Match for Goal (Match to epistemic vs Match to hedonic),  $F(1, 472) = .09, p = .77, \eta_p^2 < .001$  or Study  $F(1, 472) = .71, p = .55, \eta_p^2 = .004$ .

<sup>5</sup> Decomposition by personal involvement revealed a two-way interaction between Goal and Argument Quality for those in the high-personal involvement condition [ $F(1, 422) = 120.98, p = .00, \eta_p^2 = .03$ ] because argument quality affected attitudes more in the epistemic than in the hedonic condition. However, in the low personal involvement condition, a significant Goal X Argument Quality interaction [ $F(1, 422) = 38.13, p = .00, \eta_p^2 = .01$ ] revealed that argument quality mattered more in the hedonic than in the epistemic condition.



**Fig. 4** Attitudes as a function of goal orientation, personal involvement and argument quality in Collapsed Studies (top panel). Attitudes as a function of argument quality and matching in Collapsed Studies (bottom panel)

current results are conceptually consistent with past research showing that including cartoons, jokes, and other rhetorical features in a persuasive communication can increase elaboration in low thinking conditions but disrupt elaboration in high thinking conditions (Cline & Kellaris, 1999; Hagtvedt, 2015; Khan & Tormala, 2012; Petty et al., 1981, 1987; Zhang, 1996). The reason for this reversal has not been clear from the prior literature. The current perspective suggests that it may be that using cartoons and jokes puts people in a hedonic rather than epistemic goal condition

and individuals in this goal condition tend to process high relevance messages less than those low in relevance (see also, Côte, 2005).<sup>7</sup>

<sup>7</sup> As noted throughout, we argue that participants elaborated more under low (vs. high) involvement conditions when they were in a hedonic (vs. epistemic) goal because when people are in a hedonic condition, the goal is often to escape from the self, and thus a low self-relevant message is more likely to match one's desires than a message high in self-relevance. However, one might also say that under these matching conditions (e.g., hedonic goal with low involvement message), there is a fit between the level of thinking in the per-

The present research might also have implications for recent research examining thinking for pleasure (Wilson et al., 2019). In line with the idea that deliberately trying to be happy is challenging (Mauss et al., 2011; Schooler et al., 2003), Wilson et al. (2019) have shown that is difficult to enjoy thinking intentionally. We think that the difficulty in having fun while thinking might be especially pronounced when it comes to thinking about topics that are highly relevant for the self. Consistent with this idea, Wilson et al. (2019) found that having fun with thinking is especially difficult when the task requires high effort and concentration, and it is easier when it is about social, and external stimuli such as playing a videogame or reading (Buttrick et al., 2018; Raza et al., 2019; Wilson et al., 2014). Also consistent with this possibility, the present studies revealed that having a hedonic goal was detrimental for processing highly relevant topics.

The present research has some limitations that should be mentioned. For example, a possible concern might be whether the processing effects obtained in this research are due mostly to the manner in which goals matched to level of involvement increase thinking or goals mismatched to level of involvement decrease processing, or a combination of the two. Having a control group without a goal primed would contribute to making more precise statements, but ultimately this is not critical for our conceptual contribution. Whether processing increases in the matched or decreases in the mismatched conditions compared to an unmatched control would likely depend on many factors such as the relative intensity of each goal induced, the intensity of the involvement manipulation, the overall level of default motivation in the control group, and others. That is, there are a large number of background variables that could affect whether processing increases or decreases relative to a control group in any given study. Although we could engage in pilot testing to determine the appropriate level of various background variables so that a control group would fall precisely in between the experimental conditions, we are not convinced that this would be of much conceptual value. A control group would include some level of processing that would fall along a continuum ranging from low to high elaboration. In our view, identifying which point along that continuum is relatively more likely to be responsible for the

observed effects is not as critical as showing that our goal conditions can indeed have opposite effects on processing and evaluation depending on the level of involvement.

Another issue has to do with measures of attitude strength. Additional attitude strength measures could be included in future research to examine whether the high elaboration results we observed would generalize to other attitude strength outcomes such as persistence of attitude change, resistance to an attacking message, and others. It would also be interesting to use direct behavioral measures rather than behavioral intentions reports and to use more reliable measures. Although behavioral intentions are very highly correlated with actual behavior (see Ajzen, 2012; Ajzen & Fishbein, 1980) our conclusions about attitude strength would be even more compelling if actual behavior was examined. Finally, student samples were used to conduct the experiments due to their availability and convenience. Future studies could benefit from using other types of samples and settings.

Related to the issue above, one might wonder whether our research reflects any real-life situations. According to our findings we can motivate people to think in different ways when they are in different contexts. For example, taking into consideration results for the epistemic goal, in educational contexts teachers could increase the motivation of their students by making the communication more personally relevant for them. In that case, students would be more motivated to think about the lessons. In the same way, a doctor could match the communication to the patients' personal characteristics (Teeny et al., in press). Because patients usually come to the doctor's office in a high personal involvement circumstance, the doctor is better off using strong arguments within an epistemic rather than an entertainment appeal. Also, in these examples where people are in an epistemic goal, making the communication more personally relevant for them would translate into stronger attitudes in guiding behavior as these arguments would receive greater elaboration and thus, they would be translated into better therapy adherence, healthier behaviors, better grades, and so forth.

Although the above advice fits with conventional wisdom and various intervention practices, the current research also points to the limits of always making communications more personally relevant. That is, the current studies are notable in their implications for people processing communications in the context of entertainment programs versus news programs. Whereas past research might have led practitioners to think that communications always should be high in self-relevance or personal involvement to maximize thinking, this would be a better strategy for a news program than an entertainment program according to the current research. Indeed, in the latter case, increasing personal involvement might be even counterproductive if people maintain their

Footnote 7 (continued)

son and the situation. That is, it might be argued that matching two inductions of low-thinking could increase thinking because they fit with each other. We do not consider this alternative explanation plausible because when two inductions designed to reduce elaboration have been combined together in prior research, they typically show additive effects. That is, two inductions of low thinking reduce thinking over just one induction rather than increasing thinking because of the matching (e.g., Petty & Cacioppo, 1979; Tormala et al, 2002).

entertainment or hedonic goal during the commercial. That is, people with a hedonic goal are less likely to carefully process communications that are high in involvement than those that are low. As these examples illustrate, the present research has clear implications for both learning and entertainment contexts.

**Funding** This work was supported by the Spanish Government [grant numbers PSI2011-26212 and PSI2014-58476-P].

**Data Availability** All files will be archived in a secure location for at least 10 years following publication of the article. The corresponding author would allow access to the anonymised raw data and related coding information underlying all findings reported in the paper to other competent professionals who request them, provided that (a) the confidentiality and informed consent of participants are not compromised, (b) legal rights concerning proprietary data do not preclude their release, and (c) professionals requesting data agree in writing in advance that shared data will be used exclusively for the purpose of verifying the substantive claims through reanalysis or for some other agreed-upon use.

## Compliance with ethical standards

**Conflict of interest** Ana Cancela declares that she has no conflict of interest. Pablo Briñol declares that he has no conflict of interest. Richard E. Petty declares that he has no conflict of interest.

**Ethical Standards** (a) Research was conducted ethically, responsibly, and legally. (b) Results are reported clearly, honestly, and without fabrication, falsification or inappropriate data manipulation. (c) New findings are presented in the context of previous research, which is accurately represented. (d) Researchers are willing to make their data available to the editor when requested. (e) Methods are described clearly and unambiguously. (f) Submitted work is original, not (self-) plagiarised, and has not been published elsewhere. (g) Authorship accurately reflects individuals' contributions. (h) Funding sources and conflicts of interest are disclosed.

**Ethical approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed consent** Informed consent was obtained from all individual participants included in the study.

## References

- Ajzen, I. (2012). The theory of planned behavior. In P. A. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (pp. 438–459). SAGE.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Prentice-Hall.
- Anderson, C. A. (1983). Imagination and expectation: The effect of imagining behavioral scripts on personal influences. *Journal of Personality and Social Psychology*, *45*, 293–305. <https://doi.org/10.1037/0022-3514.45.2.293>
- Andrade, E. B., & Cohen, J. B. (2007). On the consumption of negative feelings. *Journal of Consumer Research*, *34*, 283–300. <https://doi.org/10.1086/519498>
- Bailyn, L. (1959). Mass media and children: A study of exposure habits and cognitive effects. *Psychological Monographs*, *73*, 1–48. <https://doi.org/10.1037/h00093739>
- Bartsch, A., & Schneider, F. M. (2014). Entertainment and politics revisited: How non-escapist forms of entertainment can stimulate political interest and information seeking. *Journal of Communication*, *64*, 369–396. <https://doi.org/10.1111/jcom.12095>
- Baumeister, R. F. (1991). *Escaping the self*. Basic Books.
- Blankenship, K. L., & Wegener, D. T. (2008). Opening the mind to close it: Considering a message in light of important values increases message processing and later resistance to change. *Journal of Personality and Social Psychology*, *94*, 196–213. <https://doi.org/10.1037/0022-3514.94.2.196>
- Brehm, J. W. (1966). *A theory of psychological reactance*. Academic Press.
- Briñol, P., & Petty, R. E. (2005). Individual differences in attitude change. In D. Albarracín, B. T. Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes and attitude change* (pp. 575–616). Erlbaum.
- Briñol, P., & Petty, R. E. (2019). The impact of individual differences on attitudes and attitude change. In D. Albarracín & B. T. Johnson (Eds.), *Handbook of attitudes* (2nd ed., Vol. 1, pp. 520–556). Routledge.
- Briñol, P., Petty, R. E., Stavrakaki, M., Lamprinakos, G., Wagner, B. C., & Díaz, D. (2018). Affective and cognitive validation of thoughts: An appraisal perspective on anger, disgust, surprise, and awe. *Journal of Personality and Social Psychology*, *114*, 693–718. <https://doi.org/10.1037/pspa0000118>
- Briñol, P., Petty, R. E., & Wheeler, S. C. (2006). Discrepancies between explicit and implicit self-concepts: Consequences for information processing. *Journal of Personality and Social Psychology*, *91*, 154–170. <https://doi.org/10.1037/0022-3514.91.1.154>
- Briñol, P., Rucker, D. D., & Petty, R. E. (2015). Naïve theories about persuasion: Implication for information processing and consumer attitude change. *International Journal of Advertising*, *34*, 85–106. <https://doi.org/10.1080/02650487.2014.997080>
- Bryant, J., & Comisky, P. W. (1978). The effect of positioning a message within differentially cognitive involving portions of a television segment on recall of a message. *Human Communication Research*, *5*, 63–75. <https://doi.org/10.1111/j.1468-2958.1978.tb00623.x>
- Burnkrant, R. E., & Unnava, H. R. (1989). Self-referencing: A strategy for increasing processing of message content. *Personality and Social Psychology Bulletin*, *15*, 628–638. <https://doi.org/10.1177/0146167289154015>
- Buttrick, N. R., Choi, H., Wilson, T. D., Oishi, S., Boker, S. M., Gilbert, D. T., ... Wilks, D. C. (2018). Cross-cultural consistency and relativity in the enjoyment of thinking versus doing. *Journal of Personality and Social Psychology*, *117*, e71–e83. <https://doi.org/10.1037/pspp0000198>
- Carpenter, C. J. (2015). A meta-analysis of the ELM's argument quality X processing type predictions. *Human Communication Research*, *41*, 501–534. <https://doi.org/10.1111/hcre.12054>
- Chaiken, S., Liberman, A., & Eagly, A. H. (1989). Heuristic and systematic information processing within and beyond the persuasion context. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 212–252). Guilford.
- Chaiken, S., & Trope, Y. (Eds.). (1999). *Dual process theories in social psychology*. Guilford Press.
- Cline, T. W., & Kellaris, J. J. (1999). The joining impact of humor and argument strength in a print advertising context: A case for weaker arguments. *Psychology & Marketing*,

- 16, 69–87. [https://doi.org/10.1002/\(SICI\)1520-6793\(199901\)16:1%3c69::AID-MAR5%3e3.0.CO;2-9](https://doi.org/10.1002/(SICI)1520-6793(199901)16:1%3c69::AID-MAR5%3e3.0.CO;2-9)
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Erlbaum.
- Côte, S. (2005). Reconciling the feelings-as-information and hedonic contingency models of how mood influences systematic information processing. *Journal of Applied Social Psychology, 35*, 1656–1679. <https://doi.org/10.1111/j.1559-1816.2005.tb02189.x>
- Duval, T. S., & Wicklund, R. A. (1972). *A theory of objective self-awareness*. Academic Press.
- Echterhoff, G., Higgins, E. T., Kopietz, R., & Groll, S. (2008). How communication goals determine when audience tuning biases memory. *Journal of Experimental Psychology, 137*, 3–21. <https://doi.org/10.1037/0096-3445.137.1.3>
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G\* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods, 39*, 175–191. <https://doi.org/10.3758/BF03193146>
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford University Press.
- Fleming, M. A., & Petty, R. E. (2000). Identity and persuasion: An elaboration likelihood approach. In D. J. Terry & M. A. Hogg (Eds.), *Attitudes, behavior, and social context: The role of norms and group membership* (pp. 171–199). Lawrence Erlbaum.
- Green, M. C. (2006). Narratives and cancer communication. *Journal of Communication, 56*, 163–183. <https://doi.org/10.1111/j.1460-2466.2006.00288.x>
- Green, M. C., Brock, T. D., & Kaufman, G. F. (2004). Understanding media enjoyment: The role of transportation into narrative worlds. *Communication Theory, 14*, 311–327. <https://doi.org/10.1111/j.1468-2885.2004.tb00317.x>
- Hagtvedt, H. (2015). Promotional phrases as questions versus statements: An influence of phrase style on product evaluation. *Journal of Consumer Psychology, 4*, 635–641. <https://doi.org/10.1016/j.jcps.2014.12.005>
- Harackiewicz, J. M., Rozek, C. S., Hulleman, C. S., & Hyde, J. S. (2012). Helping parents to motivate adolescents in mathematics and science: An experimental test of a utility-value intervention. *Psychological Science, 23*, 899–906. <https://doi.org/10.1177/0956797611435530>
- Hayes, A. (2013). *Introduction to mediation, moderation, and conditional process analysis*. Guilford Press.
- Higgins, E. T., Cesario, J., Hagiwara, N., Spiegel, S., & Pittman, T. (2010). Increasing or decreasing interest in activities: The role of regulatory fit. *Journal of Personality and Social Psychology, 98*, 559–572. <https://doi.org/10.1037/a0018833>
- Horcajo, J., Briñol, P., & Petty, R. E. (2014). Multiple roles for majority versus minority source status on persuasion when source status follows the message. *Social Influence, 9*, 37–51. <https://doi.org/10.1080/15534510.2012.743485>
- Horcajo, J., Briñol, P., & Petty, R. E. (2010). Consumer persuasion: Indirect change and implicit balance. *Psychology and Marketing, 27*, 938–963. <https://doi.org/10.1002/mar.20367>
- Horcajo, J., Petty, R. E., & Briñol, P. (2010). The effects of majority versus minority source status on persuasion: A self-validation analysis. *Journal of Personality and Social Psychology, 99*, 498–512. <https://doi.org/10.1037/a0018626>
- Hulleman, C. S., & Harackiewicz, J. M. (2009). Promoting interest and performance in high school science classes. *Science, 326*, 1410–1412. <https://doi.org/10.1126/science.1177067>
- Igartua, J. J., & Vega Casanova, J. (2016). Identification with characters, elaboration, and counter-arguing in entertainment education interventions through audiovisual fiction. *Journal of Health Communication, 21*, 293–300. <https://doi.org/10.1080/10810730.2015.1064494>
- Johnson, I., Petty, R. E., Briñol, P., & See, Y. H. M. (2017). Persuasive message scrutiny as a function of implicit-explicit discrepancies in racial attitudes. *Journal of Experimental Social Psychology, 70*, 222–234. <https://doi.org/10.1016/j.jesp.2016.11.007>
- Khan, U., & Tormala, Z. L. (2012). Inviting questions. *Journal of Consumer Psychology, 22*, 408–417. <https://doi.org/10.1016/j.jcps.2011.08.001>
- Kruglanski, A. W., & Webster, D. M. (1996). Motivated closing of the mind: “Seizing” and “freezing.” *Psychological Review, 103*, 263–283. <https://doi.org/10.1037/0033-295X.103.2.263>
- Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin, 108*, 480–498. <https://doi.org/10.1037/0033-2909.108.3.480>
- Maslow, A. H. (1962). *Toward a psychology of being*. Van Nostrand.
- Mauss, I. B., Tamir, M., Anderson, C. L., & Savino, N. S. (2011). Can seeking happiness make people unhappy? Paradoxical effects of valuing happiness. *Emotion, 11*, 807–815. <https://doi.org/10.1037/a0022010>
- Petty, R. E., & Briñol, P. (2012). The elaboration likelihood model. In P. A. M. Van Lange, A. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (Vol. 1, pp. 224–245). Sage.
- Petty, R. E., & Cacioppo, J. T. (1979). Issue involvement can increase or decrease persuasion by enhancing message-relevant cognitive responses. *Journal of Personality and Social Psychology, 37*, 1915–1926. <https://doi.org/10.1037/0022-3514.37.10.1915>
- Petty, R. E., & Cacioppo, J. T. (1984). The effects of involvement on responses to argument quantity and quality: Central and peripheral routes to persuasion. *Journal of Personality and Social Psychology, 46*, 69–81. <https://doi.org/10.1037/0022-3514.46.1.69>
- Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19, pp. 123–205). Academic Press.
- Petty, R. E., & Cacioppo, J. T. (1990). Involvement and persuasion: Tradition versus integration. *Psychological Bulletin, 107*, 367–374. <https://doi.org/10.1037/0033-2909.107.3.367>
- Petty, R. E., Cacioppo, J. T., & Heesacker, M. (1981). Effects of rhetorical questions on persuasion: A cognitive response analysis. *Journal of Personality and Social Psychology, 40*, 432–440. <https://doi.org/10.1037/0022-3514.40.3.432>
- Petty, R. E., Cacioppo, J. T., & Schumann, D. (1983). Central and peripheral routes to advertising effectiveness: The moderating role of involvement. *Journal of Consumer Research, 10*, 135–146. <https://doi.org/10.1086/208954>
- Petty, R. E., Harkins, S. G., & Williams, K. D. (1980). The effects of group diffusion of cognitive effort on attitudes: An information processing view. *Journal of Personality and Social Psychology, 38*, 81–92. <https://doi.org/10.1037/0022-3514.38.1.81>
- Petty, R. E., Rennie, G. A., & Cacioppo, J. T. (1987). Assertion versus interrogation format in opinion surveys: Questions enhance thoughtful responding. *Public Opinion Quarterly, 51*, 481–494. <https://doi.org/10.1086/269053>
- Petty, R. E., Wells, G. L., & Brock, T. C. (1976). Distraction can enhance or reduce yielding to propaganda: Thought disruption versus effort justification. *Journal of Personality and Social Psychology, 34*, 874–884. <https://doi.org/10.1037/0022-3514.34.5.874>
- Raza, S., Buttrick, N. R., Wesgate, E. C., Heintzelman, S. J., Furrer, R., Guilbert, D. T., & Wilson, T. D. (2019). *Thinking for pleasure and personal meaningfulness*. Unpublished manuscript University of Virginia.
- Schooler, J. W., Ariely, D., & Lowenstein, G. (2003). The pursuit and monitoring of happiness can be self-defeating. In J. Carrillo & I. Brocas (Eds.), *Psychology and economics* (pp. 41–70). Oxford University Press.
- See, Y. H. M., Petty, R. E., & Fabrigar, L. R. (2013). Affective-cognitive meta-bases versus structural bases of attitudes predict processing interest versus efficiency. *Personality and Social Psychology*

- Bulletin*, 39, 1111–1123. <https://doi.org/10.1177/0146167213490807>
- Sheeran, P. (2002). Intention-behavior relations: A conceptual and empirical review. *European Review of Social Psychology*, 12, 1–36. <https://doi.org/10.1080/14792772143000003>
- Sherman, J., Gawronski, B., & Trope, Y. (Eds.). (2014). *Dual-process theories of the social mind*. New York: Guilford Press.
- Slater, M. D., & Rouner, D. (2002). Entertainment—education and elaboration likelihood: Understanding the processing of narrative persuasion. *Communication theory*, 12, 173–191. <https://doi.org/10.1111/j.1468-2885.2002.tb00265.x>
- Stavraki, M., Lamprinakos, G., Briñol, P., Petty, R. E., Karantinou, K., & Díaz, D. (in press). The influence of emotions on information processing and persuasion: A differential appraisals perspective. *Journal of Experimental Social Psychology*.
- Teeny, J. D., Siev, J. J., Briñol, P., & Petty, R. E. (in press). A review and conceptual framework for understanding personalized matching effects in persuasion. *Journal of Consumer Psychology*. <https://doi.org/https://doi.org/10.1002/jcpsy.1198>
- Thorndike, E. L. (1927). The law of effect. *The American Journal of Psychology*, 39, 212–222. <https://doi.org/10.2307/1415413>
- Tormala, Z. L., Petty, R. E., & Briñol, P. (2002). Ease of retrieval effects in persuasion: A self-validation analysis. *Personality and Social Psychology Bulletin*, 28, 1700–1712. <https://doi.org/10.1177/014616702237651>
- Walton, M. G., & Wilson, T. D. (2018). Wise interventions: Psychological remedies for social and personal problems. *Psychological Review*, 125, 617–655. <https://doi.org/10.1037/rev0000115>
- Wicklund, R. A. (1974). *Freedom and reactance*. Wiley.
- Wilson, T. D., Reinhard, D. A., Westgate, E. C., Gilbert, D. T., Ellerbeck, N., Hahn, C., Brown, C., & Shaked, A. (2014). Just think: The challenges of the disengaged mind. *Science*, 345, 75–77. <https://doi.org/10.1126/science.1250830>
- Wilson, T. D., Westgate, E. C., Buttrick, N. R., & Gilbert, D. (2019). The mind is its own place: The difficulties and benefits of thinking for pleasure. *Advances in Experimental Social Psychology*, 60, 175–221. <https://doi.org/10.1016/bs.aesp.2019.05.001>
- Zhang, Y. (1996). Responses to humorous advertising: The moderating effect of need for cognition. *Journal of Advertising*, 25, 15–32. <https://doi.org/10.1080/00913367.1996.10673493>

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.