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Four studies examine how consumers' prior knowledge of a product category and the way they process product information affect evaluation. Consumers with extensive prior knowledge of a category evaluate the brand more favorably when the presentation of the product information prompts a sense of progress rather than facilitating a detailed assessment (Studies 1 and 2), as well as when the information presentation involves a high level of construal rather than a low level (Studies 3 and 4). Consumers with limited domain knowledge exhibit opposite outcomes. The subjective experience of processing fluency mediates these effects. The findings suggest that evaluations are more favorable when there is a fit between prior knowledge and message processing than when fit is absent.

Keywords: prior knowledge, expertise, fluency, construal level, processing mode

The Effects of Consumer Prior Knowledge and Processing Strategies on Judgments

Consumers' prior knowledge often serves as an important means of market segmentation. For example, a Web page for a laptop computer targeting consumers with extensive prior knowledge of computers might present the specifications related to technical information, such as its display, memory, and hard drive, because such information is particularly informative to this segment (Maheswaran and Sternthal 1990). In contrast, for consumers with limited knowledge about computers, the page might highlight the benefits of the brand's technical features, such as enhanced visibility resulting from the LED-backlit screen, because this information is most informative for these consumers. These examples illustrate the well-known observation that a correspondence between consumers' prior knowledge and the content presented in an appeal enhances the impact of a message (Alba and Hutchinson 2000; Bettman and Sujan 1987).

Emerging evidence also indicates that consumers' evaluations of an object depend not only on the content but also on

the subjective experience that results from their reflection on how they process that information to make a judgment (e.g., Higgins 2000; Schwarz 2004). Subjective experiences documented in prior literature include the perceived ease with which information relevant to advocacy comes to mind (Menon and Raghurir 2003; Tybout et al. 2005), the fluency with which information is processed (Lee and Aaker 2004; Novemsky et al. 2007), and the subjective experience of feeling right about the judgment process (Camacho, Higgins, and Luger 2003). We extend this analysis by examining the conditions under which consumers' prior knowledge influences the impact of a message through the subjective experience arising from their judgment and decision-making process. We adopt the term "processing fluency" to refer to this experience.

The studies we undertake are based on the premise that when a person processes message information in a manner that corresponds with the processing proclivities associated with his or her prior knowledge, a positive subjective experience of processing fluency results, which in turn enhances the person's judgments. Insights about these processing proclivities in the literature examining the effects of prior knowledge indicate that consumers with extensive knowledge in a domain exhibit a sense of urgency about achieving their goals (Lewandowsky and Kirsner 2000), so they follow well-traveled and procedural solution paths (Spence and Brucks 1997; Wiley 1998), are selective in their information search (Bettman and Park 1980; Schraagen and Leijenhorst 2001), and emphasize information that

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is focal to their goal (Lewandowsky and Kirsner 2000). In contrast, those with limited knowledge about a topic are more intent on acquiring message information. Therefore, they tend to engage in more external searches for information rather than relying on their existing knowledge (Mandel and Johnson 2002), and they are slower to form an impression or judgment than their more knowledgeable counterparts (Sujan 1985).

This characterization of preferred knowledge-based processing styles suggests that consumers with extensive knowledge are more focused on achieving their goals, whereas those with limited knowledge are more focused on acquiring message information. Processing strategies that correspond to these proclivities should prompt a positive subjective experience in the respective consumers. To achieve such correspondence, marketers can adopt an appropriate processing mode, which refers to whether consumers can process the information in a manner that stimulates their sense of progress toward a goal or facilitates detailed comparisons for decision support (Kruglanski et al. 2000). Because of their sense of urgency for goal achievement, consumers with extensive knowledge are likely to prefer processing message information in a manner that they perceive will facilitate their progress toward a goal (i.e., progress mode), whereas less knowledgeable consumers may prefer a processing mode that enables detailed assessments of the message information and careful comparison of choice alternatives (i.e., assessment mode).

The correspondence between prior knowledge and processing strategies also can result from a message presentation at the appropriate level of construal, which refers to the abstract or concrete representation of the information (Trope and Liberman 2003; Trope, Liberman, and Wakslak 2007). Representing information at a high level of construal should fit the processing proclivities of consumers with extensive prior knowledge because abstract information aligns with goal achievement. In contrast, consumers with less knowledge should prefer information represented at a low level of construal because such concrete information facilitates their learning about the message content.

We investigate the impact of prior knowledge on brand judgments when information is processed using different modes and represented at different levels of construal. When there is a fit between prior knowledge and the mode of information processing, as well as between prior knowledge and the level of construal, we anticipate a positive subjective experience of fluency that results in more favorable judgments toward a brand. We refer to this prediction as the “knowledge fit hypothesis.”

PRIOR KNOWLEDGE AND CONSUMER PROCESSING PROCLIVITIES

Prior Knowledge and Processing Mode

We hypothesize that consumers with extensive prior knowledge exhibit a preference for a progress mode, which provides a sense of progress toward a goal. Because of their sense of urgency with regard to goal achievement (Lewandowsky and Kirsner 2000), consumers with extensive knowledge should prefer to process message information in a manner that they perceive facilitates their progress toward a goal. This prediction is consistent with the observation that compared with those with limited knowledge,

consumers with extensive prior knowledge exhibit a greater tendency to make quick decisions (Thunholm 2005) and display greater selectivity in the information they consider as a basis for decisions (Bettman and Park 1980; Brucks 1985; Schraagen and Leijenhorst 2001), to the point that they sometimes overlook useful information (Radecki and Jaccard 1995) or prematurely stop learning new information (Wood and Lynch 2002).

In contrast, consumers with limited prior knowledge are likely to prefer an assessment mode, which enables them to adopt processing strategies that facilitate their careful and complete consideration of information to compensate for their lack of prior knowledge and acquire information. Consistent with this reasoning, consumers with limited knowledge make more comparisons among alternatives than more knowledgeable consumers (Mitchell and Dacin 1996). They also exhibit a greater tendency to engage in data-driven processing, which facilitates their acquisition and consideration of all pieces of information (Chi, Glaser, and Rees 1982), including information peripheral to the decision (Alba and Hutchinson 1987; Thunholm 2005). These findings suggest that an assessment processing mode, which is characterized by detailed comparisons among alternatives, should fit with the processing proclivities of consumers with limited prior knowledge.

Prior Knowledge and Level of Construal

Differences in prior knowledge are likely to influence preferences for the level of construal used to present information (Trope and Liberman 2003; Vallacher and Wegner 1987). High-level construals are abstract representations that identify core features of an object and focus on why an object might be of interest, whereas low-level construals are concrete representations that encompass the surface features of an object and focus on how it operates. For example, the same feature of an MP3 player might be described in terms of a high-level construal, such as “easy menu navigation,” or a low-level construal, such as “select a song by artist, album, song title, and more with the touch of a button.” We predict a fit between extensive prior knowledge and high-level construals because they pertain to the “why” aspect of an object and thus focus primarily on goals (Liberman and Trope 1998). We also anticipate a fit between limited prior knowledge and low-level construals because the concrete description of how an object performs facilitates the acquisition of the message content (Liberman and Trope 1998).

Support for these predictions derives from studies that indicate that people with extensive prior knowledge tend to represent information more abstractly than those with limited knowledge across a variety of domains, including chess (Chi and Simon 1973), physics (Chi, Glaser, and Rees 1982), and mathematics (Schoenfeld and Herrmann 1982). For example, when providing task instructions for others to follow, those with extensive domain knowledge use more abstract statements and fewer concrete ones than those with limited prior knowledge (Hinds, Patterson, and Pfeffer 2001). Highly knowledgeable people also list fewer and less specific steps when describing a task (Langer and Imber 1979) and develop more abstract categories (Honeck, Firmant, and Case 1987) than those with limited prior knowledge. Experts in physics use a deep and abstract conceptual structure to group problems in their knowledge domain,

whereas novices are more likely to perform such tasks on the basis of surface features, which are more concrete (Chi, Glaser, and Rees 1982).

Similar observations pertain to the consumer domain (e.g., Alba and Hutchinson 1987; Roehm and Sternthal 2001). In learning about a new product, consumers with extensive domain knowledge exhibit more favorable evaluations when the product information is conveyed using an analogy based on abstract structural relations, whereas those with limited knowledge are more persuaded when the information is presented using a literal similarity based on the surface features (Roehm and Sternthal 2001).

These findings lend credence to the notion of fit between consumers' prior knowledge and the processing mode for information, as well as between prior knowledge and the level of construal at which information is represented. This fit is of interest because it has implications for consumer judgments.

FIT EFFECTS ON JUDGMENT

Although fit effects have not been investigated in the context of prior knowledge, research in other domains indicates that a fit between people's processing proclivities and the way they process information can lead to more favorable judgments (Avnet and Higgins 2003; Higgins 2000; Lee and Aaker 2004). For example, Avnet and Higgins (2003) presented participants with information about several reading lights and asked them to make a choice. Participants followed either a progressive elimination strategy, which involved sequentially eliminating alternatives with the worst performance on an attribute until only one option remained, or a full evaluation strategy, which entailed making choices based on detailed comparisons among all brands on all attributes. Their results indicate that participants with an orientation toward making progress were willing to pay more for the chosen reading light when they used a progressive elimination rather than a full evaluation strategy to process the information, whereas they found the reverse for participants with an orientation toward assessment.

Recent research also has suggested that the effect of fit on judgment results from the positive subjective experience of making the judgment, which transfers to the evaluation of the object. Lee and Aaker (2004) report that promotion-focused participants, whose orientation is toward advancement and growth, judged an advertised brand more favorably when the message was framed in terms of gains ("get energized") rather than nonlosses ("don't miss out on getting energized"), whereas for those with a prevention focus and an orientation toward safety and security, the opposite judgments resulted. Furthermore, Lee and Aaker provide evidence that when the goal orientation and message framing fit, participants experience a feeling of processing fluency, that is, the subjective sense that the message information is easy to process. This feeling of processing fluency arising from fit induces more favorable judgments of the advertised brand than occur in the absence of fit.

On the basis of these findings, we predict that when there is a fit between the processing proclivities associated with prior knowledge and the manner in which the information is processed or presented, consumers experience a subjective feeling of fluency that results in more favorable evaluations

than when such fit is absent. Specifically, we hypothesize the following:

- H₁: Consumers with extensive prior category knowledge exhibit more favorable evaluations of a brand when they process the product information in a manner that facilitates progress rather than assessment; the opposite effects hold for those with limited prior knowledge.
- H₂: Consumers with extensive prior category knowledge exhibit more favorable evaluations of a brand when the product information is presented at a high level of construal rather than at a low level of construal; the opposite effects hold for those with limited prior knowledge.

We conducted four studies to test these predictions, in which we either measured or manipulated participants' prior knowledge about the focal product category. In Studies 1 and 2, we test H₁ by examining the fit effect between prior knowledge and processing modes related to progress and assessment. In Studies 3 and 4, we test H₂ by examining the fit effect between prior knowledge and the level of construal of the message. Furthermore, we examine the role of processing fluency in mediating the effects of fit on judgments in Studies 2 and 4.

Support for these predictions suggests that the effects of prior knowledge depend not only on information content but also on the presentation of that information. Understanding the preferences for information delivery modes by those who vary in their domain knowledge is useful as a means to suggest information processing strategies and design presentation formats that can create a feeling of fluency and enhance message impact.

STUDY 1: FIT BETWEEN PRIOR KNOWLEDGE AND PROGRESS VERSUS ASSESSMENT MODE

Study 1 provides an initial test of the knowledge fit hypothesis by examining the effects of fit between prior knowledge and processing mode on judgment. Participants received product information about several alternative brands in a manner that either provided a sense of progress toward their goal or facilitated their assessment of alternative brands (Kruglanski et al. 2000). We predict that those with extensive prior knowledge will exhibit more favorable evaluations when they process the information in a manner that prompts a sense of progress, whereas those with limited prior knowledge will evaluate it more favorably when their information processing facilitates their assessment.

Method

Forty-eight undergraduate students (29 women) from a midwestern U.S. university received \$10 to participate in this study. Participants were recruited to take part in a product evaluation study. To operationalize the progress and assessment processing modes, we adapted the procedures that Avnet and Higgins (2003) developed to a new context. Specifically, a 5 × 4 information matrix included five different brands of laundry detergent (Brands A–E), described according to four features: odor removal, stain removal, antistatic, and fade resistance. For each feature, each brand received a rating on a ten-point scale. The values of the features were configured, such that Brand B was the superior brand in all cases because it dominated the four alternative brands on at least one feature and was not dominated by any other brand on any feature (for further information, see the Web Appendix at <http://www.>

marketingpower.com/jmrapril10). This procedure ensured that all participants would choose the same brand and the object of their evaluation would be the same.

To manipulate the processing mode, we instructed participants at the outset of the task to follow either a progress or an assessment mode to process the product information (Avnet and Higgins 2003). Participants in the progress condition were asked to make their choice by selecting one feature and eliminating the alternative that performed worst on that feature and then repeating this process for subsequent features until they were left with only a single alternative. The instructions read:

Please examine the information about these brands of laundry detergent using the following decision strategy. Look at the first attribute, *odor removal*, brand by brand. Exclude the brand that has the worst value on this attribute. Now you are left with four brands. Go to the second attribute, *stain removal*, and again look at it for all the remaining brands. Exclude the brand that has the worst value on this attribute. Follow this procedure until you are left with only one brand. Mark it as your chosen brand.

Because the final choice process involves narrowing the number of alternative possibilities at the end of each decision phase, this strategy provides a sense of progress toward making a decision.

Participants in the assessment condition instead made their choice by comparing all alternatives on all the attributes and then choosing the brand with the best attributes overall. The instructions read:

Please examine the information about these brands of laundry detergent using the following decision strategy. Look at brand A. Compare it to the rest of the brands based on each of the attributes. Now look at brand B. Compare it to the rest of the brands based on each of the attributes. Do so until you have looked at all the brands and at all the attributes. After you are done comparing the brands, decide which brand you prefer most. Mark this brand as your chosen brand.

This strategy involves making as many comparisons as possible in reaching the final choice and thus prompts assessment.

After reviewing the product information, participants chose one of the five brands and then evaluated their chosen brand on four seven-point scales (“bad/good,” “dislikable/likable,” “negative/positive,” and “unfavorable/favorable”). Participants responded to three seven-point items that served as checks for the progress and assessment manipulations. They indicated whether the strategy they used to examine product information allowed for a detailed assessment of the features, a clear overview of the products, and a detailed assessment of alternative brands (1 = “strongly disagree,” and 7 = “strongly agree”). Finally, we assessed participants’ prior knowledge of the laundry detergent category using a 12-item true–false questionnaire (e.g., “For oil-based stains, it’s best to soak them in cold water,” “Laundry detergents with a bleach alternative use active enzymes to remove stains”; for further information, see the Web Appendix at <http://www.marketingpower.com/jmrapril10>).

Results and Discussion

Manipulation check. To assess whether we had manipulated progress and assessment modes successfully, we cre-

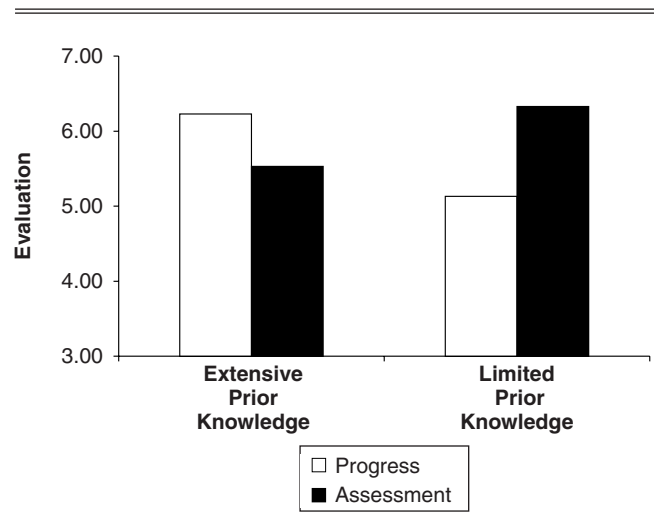
ated a manipulation check index in which we averaged participants’ responses to the three manipulation check items ($\alpha = .91$). A one-way analysis of variance (ANOVA) performed on the manipulation check index indicates that participants in the assessment processing strategy condition perceived that they were better able to assess the product information ($M = 5.40$) compared with those in the progress processing strategy condition ($M = 3.77$; $F(1, 46) = 15.53$, $p < .001$), which suggests our manipulation of processing mode is successful.

Prior knowledge. To assess participants’ prior category knowledge, we coded their responses to the 12-item test of laundry knowledge, such that a correct response takes a value of 1 and an incorrect response equals 0. We then calculated prior knowledge scores by adding the participants’ scores on the quiz items ($M = 8.94$). Using a median split ($Mdn = 9$) of participants’ knowledge scores, we categorized them into those with extensive versus limited prior knowledge. We find no significant difference in prior knowledge between female ($M = 9.10$) and male ($M = 8.68$; $F < 1$) participants. Among those with extensive prior knowledge, 70.8% were women and 29.2% were men. Among those with limited prior knowledge, 50.0% were women and 50.0% were men.

Evaluation. To examine the effects of fit between prior knowledge and processing mode on judgment, we first developed an evaluation score by averaging the participants’ responses to the four evaluation items ($\alpha = .91$). A 2 (prior knowledge: extensive versus limited) \times 2 (processing mode: progress versus assessment) ANOVA indicates that the main effects of prior knowledge and processing mode are not significant ($F < 1$). However, the interaction between these factors is significant ($F(1, 44) = 14.81$, $p < .001$; see Figure 1).¹ As we predicted, participants with extensive prior knowl-

¹In all the analyses in which we report ANOVAs based on a median split of prior knowledge scores, we also ran regressions with prior knowledge scores as continuous variables; we obtained the same patterns of results. We omit these results to avoid redundancy.

Figure 1
BRAND EVALUATION AS A FUNCTION OF PRIOR KNOWLEDGE
AND PROCESSING MODE (STUDY 1)



edge evaluated the chosen brand more favorably when their processing mode involved progress ($M = 6.23$) than when it entailed assessment ($M = 5.53$; $F(1, 44) = 4.25, p < .05$). Conversely, those with limited prior knowledge exhibited more favorable evaluations when their processing involved assessment ($M = 6.33$) rather than progress ($M = 5.13$; $F(1, 44) = 11.25, p < .01$).

We also examined whether gender might account for the pattern of outcomes. A 2 (gender: male versus female) \times 2 (processing mode: progress versus assessment) ANOVA on evaluation indicates that the main effects of gender and processing mode are not significant ($F_s < 1$). The interaction between these factors also is not significant ($F(1, 44) = 1.65, p > .20$). Therefore, the effect of fit between prior knowledge and processing mode on evaluations cannot be attributed to gender.

Study 1 provides support for the knowledge fit hypothesis. As we predicted, participants with extensive prior category knowledge evaluate their chosen brand more favorably when they process the product information using a progress mode than when using an assessment mode, whereas those with limited prior knowledge exhibit the opposite pattern of results (H_1). Furthermore, these outcomes occur when all participants have been exposed to the same information, which is consistent with the notion that the evaluations are based on the subjective experience of information processing. In Study 2, we seek additional evidence regarding the processes at work by measuring the subjective experience of fluency and determining whether it mediates the effects of fit on judgment, as observed in Study 1.

STUDY 2: FIT BETWEEN MANIPULATED KNOWLEDGE AND PROGRESS VERSUS ASSESSMENT MODE

We designed Study 2 to achieve two objectives: First, we examine the robustness of the fit effects observed in Study 1 by using the same operationalization of progress and assessment mode. However, rather than measuring participants' prior knowledge of the product category, we manipulate it by administering a training exercise at the beginning of the study. In addition, we consider consumers' prior knowledge of MP3 players rather than laundry detergent. Participants primed with extensive prior knowledge should evaluate the chosen brand more favorably when they use a progress mode rather than an assessment mode to process the product information, and the reverse should occur for those with limited knowledge (H_1). Second, we investigate whether the observed effects of fit on evaluation are attributable to the subjective experience of processing fluency. Therefore, we measure participants' subjective experience of fluency in processing the product information.

Method

Sixty-six undergraduate students (41 women) from a midwestern U.S. university received \$10 for their participation in this study. We manipulated prior knowledge at the outset of the study using a training exercise adapted from prior research (Wood and Lynch 2002). Participants read an article as a warm-up task. Those in the extensive prior knowledge condition read about MP3 players, the same category for which they would subsequently make a choice. Participants in the limited prior knowledge condition instead read

about laundry and laundry products, which were unrelated to the product category for the focal task (see the Web Appendix at <http://www.marketingpower.com/jmrapril10>). Both of the articles used a similar structure and provided a similar amount of information, and they did not differ in their processing difficulty.

Participants then completed a product choice task. The information about the five brands of MP3 players (Brands A–E) described four features: built-in memory, USB interface, digital tuner, and battery life. The configuration of the product information and the processing mode instructions were the same as those used in Study 1 (for further information, see the Web Appendix at <http://www.marketingpower.com/jmrapril10>). After reviewing the product information, participants chose one of the five brands and evaluated that brand on four seven-point scales (“bad/good,” “dislikable/likable,” “negative/positive,” and “unfavorable/favorable”). They also indicated their subjective experience of fluency in processing the product information on a seven-point scale (1 = “easy to process,” and 7 = “difficult to process”; reverse coded), similar to the scale used successfully in prior research to indicate processing fluency (Lee and Aaker 2004). Manipulation checks for the progress and assessment modes followed. That is, participants indicated whether the strategy they used to examine product information allowed them to make a detailed assessment of the features and brought them closer to making a decision with every step they took (1 = “strongly disagree,” and 7 = “strongly agree”). Finally, with regard to the adequacy of the prior knowledge manipulation, participants completed a 12-item true–false quiz about MP3 players (e.g., “Because of the compression techniques used, MP3 players can only play MP3 format music files,” “WMA format is half the size of an MP3 format, but WMA offers poorer sound quality”; see the Web Appendix at <http://www.marketingpower.com/jmrapril10>).

Results and Discussion

Manipulation check for processing mode. To assess whether we successfully manipulated processing mode, we first conducted a 2 (prior knowledge: extensive versus limited) \times 2 (processing mode: progress versus assessment) ANOVA on participants' perceptions of whether the strategy they used to process the information brought them closer to making a decision with each step. The results indicate a significant main effect of processing mode, such that those in the progress condition report a greater sense of progressing toward the goal ($M = 6.06$) than those in the assessment condition ($M = 5.20$; $F(1, 62) = 6.49, p < .05$). Neither the main effect of prior knowledge ($F(1, 62) = 1.33, p > .25$) nor the interaction between the two factors ($F(1, 62) = 2.27, p > .10$) is significant. A similar analysis conducted on the extent to which the processing mode facilitated comparison reveals that participants in the assessment condition believed that the processing strategy allowed them to assess the product features better ($M = 5.46$) than those in the progress condition ($M = 4.84$), though this difference does not reach the conventional level of significance ($F(1, 62) = 2.76, p = .10$). Again, neither the main effect of prior knowledge ($F(1, 62) = 1.32, p > .25$) nor the interaction ($F < 1$) is significant. These findings suggest a successful manipulation of processing mode.

Manipulation check of prior knowledge. To check our manipulation of prior category knowledge, we first coded participants' responses to the 12-item quiz about MP3 players, with a correct response coded 1 and an incorrect response coded 0. To develop the prior knowledge score, we added participants' scores on the quiz items ($M = 8.47$). A 2 (prior knowledge: extensive versus limited) \times 2 (processing mode: progress versus assessment) ANOVA on participants' quiz scores indicates that the main effect of prior knowledge is significant, such that those assigned to the extensive prior knowledge condition perform better on the quiz ($M = 9.59$) than those assigned to the limited prior knowledge condition ($M = 7.41$; $F(1, 62) = 14.76, p < .001$). Neither the main effect of processing mode ($F(1, 62) = 1.82, p > .15$) nor the interaction between prior knowledge and processing mode ($F < 1$) is significant.

We also examined whether gender had an effect on participants' prior knowledge of MP3 players. A one-way ANOVA indicates the presence of a significant effect of gender on participants' performance on the knowledge quiz: Male participants have greater prior knowledge of MP3 players ($M = 9.44$) than female participants ($M = 7.88$; $F(1, 64) = 6.73, p < .05$).

Evaluation. To examine whether the findings of Study 2 replicate the effect of fit between prior knowledge and processing mode, we first calculated an evaluation score by averaging participants' responses on the four evaluation items ($\alpha = .93$). A 2 (prior knowledge: extensive versus limited) \times 2 (processing mode: progress versus assessment) ANOVA indicates that the main effect of processing mode on evaluation is not significant ($F < 1$). However, there is a marginally significant main effect of prior knowledge, such that those in the extensive prior knowledge condition express more favorable evaluations ($M = 6.12$) than those in the limited prior knowledge condition ($M = 5.73$; $F(1, 62) = 3.79, p < .06$). As Figure 2 shows, the predicted interaction between prior knowledge and processing mode is significant ($F(1, 62) = 10.97, p < .01$). Consistent with our hypothesis, participants primed with extensive prior knowledge evaluated their chosen brand more favorably when

they used a progress mode to process the product information ($M = 6.44$) than when they used an assessment mode ($M = 5.80$; $F(1, 62) = 3.93, p = .05$). In contrast, those primed with limited prior knowledge had more favorable evaluations when they used an assessment mode ($M = 6.11$) than when they used a progress mode ($M = 5.25$; $F(1, 62) = 7.35, p < .01$).

We also conducted a 2 (gender: male versus female) \times 2 (processing mode: progress versus assessment) ANOVA on evaluation to determine whether gender might produce the same pattern of results. Neither the main effect of gender ($F(1, 62) = 1.34, p > .25$) nor the processing mode ($F < 1$) is significant. The interaction between these factors also is not significant ($F(1, 62) = 1.24, p > .25$). The effects observed for evaluation are distinct from the gender effects.

Subjective experience. To test the hypothesis that the effect of fit between prior knowledge and processing mode on judgment is mediated by participants' subjective experience of fluency while processing the product information, we performed a mediation analysis, following the procedure that Baron and Kenny (1986) developed. First, we created a dummy variable to represent the fit between prior knowledge and processing mode (0 = no fit; 1 = fit) and regressed participants' evaluation scores on this dummy variable. The analysis indicates that the effect of fit on evaluations is significant ($\beta = .37, t = 3.17, p < .01$). Second, we regressed participants' subjective experience of processing fluency on fit; fit is a significant predictor of processing fluency ($\beta = .31, t = 2.63, p < .05$). Third, another regression reveals that the subjective experience of processing fluency has a significant effect on evaluation ($\beta = .35, t = 3.02, p < .01$). Finally, when we include both the dummy variable of fit and participants' subjective experience of processing fluency in the model to predict evaluation, the coefficient of fit declines significantly ($\beta = .29, t = 2.41, p < .05$; Sobel [1982] test $z = 2.96, p < .01$), but processing fluency remains a significant factor ($\beta = .26, t = 2.22, p < .05$). These results suggest that a subjective experience of processing fluency partially mediates the effects of fit between prior knowledge and processing mode on evaluation.

The results of Study 2 provide additional support for the knowledge fit hypothesis. Consistent with our predictions (H_1), participants trained to have extensive prior knowledge of MP3 players evaluate their chosen brand more favorably when they use a processing mode that fosters a sense of progress rather than assessment, whereas those with limited prior knowledge exhibit more favorable evaluations when they use a processing mode that facilitates assessment. Also in accord with our hypothesis, the subjective experience of processing fluency partially mediates the effect of fit between prior knowledge and processing mode on evaluations. In the next two studies, we seek evidence of the effect of fit between prior knowledge and the level of construal at which a message represents information (H_2).

STUDY 3: FIT BETWEEN PRIOR KNOWLEDGE AND LEVEL OF CONSTRUAL

Study 3 examines the effects of fit between prior knowledge and the level of construal on judgments. Participants viewed an advertisement with product information presented at either a high or a low level of construal. We predict that those with extensive prior category knowledge will

Figure 2

BRAND EVALUATION AS A FUNCTION OF MANIPULATED PRIOR KNOWLEDGE AND PROCESSING MODE (STUDY 2)

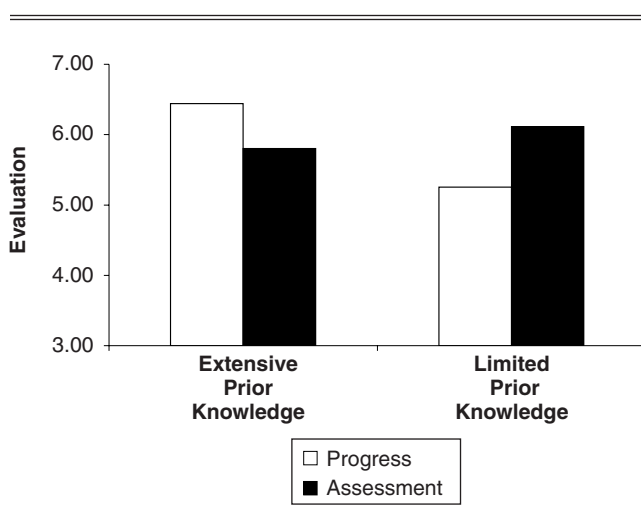


exhibit more favorable evaluations of the advertised brand when the information is represented at a high level of construal, whereas those with limited prior knowledge will evaluate the brand more favorably when the product information is represented at a low level of construal (H_2).

Method

Fifty-five undergraduate students (38 women) from a midwestern U.S. university received \$10 for participating. These participants were recruited to take part in a product evaluation study. They viewed an advertisement for a (fictitious) new model of MP3 player, called CL200, which described the MP3 player on seven features (e.g., storage capacity, memory, menu navigation). The features remained constant across the conditions but were presented at either high or low levels of construal. In the high-level construal condition, the abstract product descriptions focused on why the features were valuable, whereas in the low-level construal condition, the more concrete descriptions emphasized how the features operated (Vallacher and Wegner 1987). For example, the control menu feature noted either the “easy menu navigation” (high-level construal) or the ability to “select a song by artist, album, song title, and more with the touch of a button” (low-level construal). Similarly, the memory feature description indicated either “readily expandable memory” (high-level construal) or “insert a memory card in the built-in slot for even more space” (low-level construal; for further information, see the Web Appendix at <http://www.marketingpower.com/jmrapril10>).

After reading the advertisement, participants evaluated the MP3 player on five seven-point scales anchored by “bad/good,” “dislikable/likable,” “negative/positive,” “unfavorable/favorable,” and “not at all likely to buy/very likely to buy.” Next, for the construal level manipulation check, participants indicated how concrete the information about the CL200 MP3 player was on a seven-point scale (1 = “not at all,” and 7 = “very much”). Finally, to measure their prior category knowledge, participants completed the same quiz about MP3 players as used in Study 2.

Results and Discussion

Manipulation check. To confirm the adequacy of the construal level manipulation, we performed a one-way ANOVA on participants’ perceptions of the concreteness of the product information. As we expected, those in the low-level construal condition rated the product descriptions as more concrete ($M = 4.63$) than those in the high-level construal condition ($M = 3.64$; $F(1, 53) = 4.65, p < .05$).

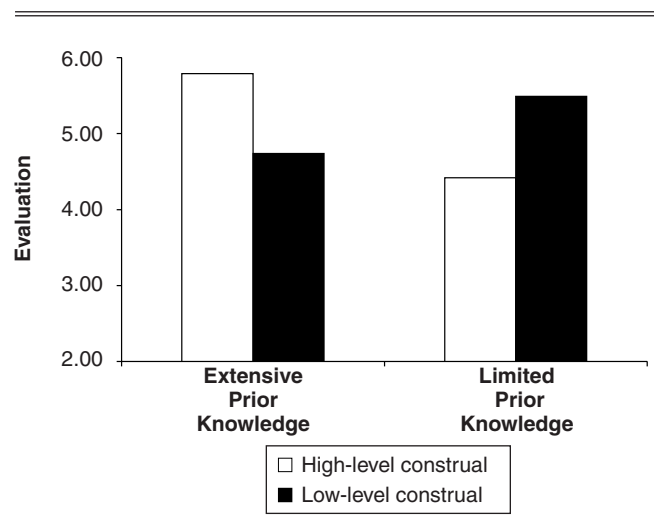
Prior knowledge. To assess participants’ prior knowledge of the MP3 player category, we first coded participants’ responses on the 12-item MP3 player quiz (correct response = 1, incorrect response = 0) and then added their scores to determine their prior knowledge ($M = 8.31$). A median split ($Mdn = 8$) of participants’ prior knowledge scores categorized them into those with extensive versus limited prior knowledge. There were no differences in prior knowledge about MP3 players between female ($M = 8.26$) and male ($M = 8.41$; $F < 1$) participants. Among those with extensive prior knowledge, 71.4% were women and 28.6% were men. Among those with limited prior knowledge, 66.7% were women and 33.3% were men.

Evaluation. We calculated an evaluation score by averaging participants’ responses to the five evaluation items ($\alpha = .88$). To test the knowledge fit hypothesis, we conducted a 2 (prior knowledge: extensive versus limited) \times 2 (level of construal: high versus low) ANOVA on product evaluation. Neither the main effect of construal level ($F < 1$) nor the main effect of prior knowledge ($F(1, 51) = 1.78, p > .15$) is significant. However, in a finding central to our hypothesis, the interaction between these factors is significant ($F(1, 51) = 20.55, p < .001$; see Figure 3). As we predicted, the planned contrasts indicate that participants with extensive prior knowledge express more favorable evaluations when the product information contains a high level of construal ($M = 5.79$) rather than at a low level of construal ($M = 4.74$; $F(1, 51) = 10.23, p < .01$), whereas those with limited prior knowledge evaluate the product more favorably when the information is presented with a low level of construal ($M = 5.49$) than when it is presented with a high level ($M = 4.42$; $F(1, 51) = 10.32, p < .01$).

To examine whether gender might account for the observed pattern of outcomes, we conducted a 2 (gender: male versus female) \times 2 (level of construal: high versus low level) ANOVA on evaluation. There is a marginally significant main effect of gender, such that female participants evaluate the MP3 player more favorably ($M = 5.29$) than male participants ($M = 4.80$; $F(1, 51) = 3.21, p < .08$). The main effect of the level of construal is not significant ($F < 1$), nor is the interaction between these factors ($F < 1$). These results suggest that the effect of fit between prior knowledge and level of construal on evaluation cannot be attributed to gender.

Study 3 offers further support for our knowledge fit hypothesis. As we predicted, participants with extensive prior knowledge offer more favorable evaluations of the product when the information presentation is represented at a high level of construal, whereas a low level of construal prompts more favorable product evaluations among participants with limited prior category knowledge (H_2).

Figure 3
BRAND EVALUATION AS A FUNCTION OF PRIOR KNOWLEDGE
AND LEVEL OF CONSTRUAL (STUDY 3)



STUDY 4: FIT BETWEEN PRIOR KNOWLEDGE AND TEMPORAL CONSTRUAL

Study 4 attempts to replicate the fit effects from Study 3 and extend the analysis in two ways. First, to provide convergent evidence of the fit between prior knowledge and the level of construal, we introduce a different operationalization of the construal level variable. Previous research has documented that information is construed at a high level when it pertains to the distant future, whereas information is construed at a low level when it pertains to the near future (Trope and Liberman 2003). Therefore, we manipulate the level of construal by varying the temporal construal described in the message. Participants with extensive prior knowledge should exhibit more favorable evaluations when the product information suggests benefits in the distant rather than near future, whereas those with limited prior knowledge should exhibit more favorable evaluations when the information implies that the benefits will occur in the near future. Second, we provide additional evidence regarding our prediction that a subjective experience of fluency underlies the knowledge fit effects on judgment by examining the mediating role of processing fluency on the fit effects between prior knowledge and level of construal.

Method

Fifty-six undergraduate students (27 women) from a mid-western U.S. university received \$10 for their participation. Participants were recruited to take part in a product evaluation study. They viewed an advertisement for a new brand of laundry detergent, called Fresh Start, that described the advertised brand on eight features. The descriptions of three features remained identical across conditions: “provides all the qualities that today’s clothes require,” “available in major supermarkets,” and “comes in three sizes: 22, 44, and 66 loads.” The descriptions of the remaining five features were varied to manipulate temporal construal. For example, in the distant-future condition, the message stated that “the new ABT® antibacterial formula keeps you germ free for as long as you own your clothes,” whereas in the near-future condition, the description indicated, “the new ABT® antibacterial formula kills germs on contact to keep you healthy” (see the Web Appendix at <http://www.marketingpower.com/jmrapril10>).

In a pretest, we checked the adequacy of this operationalization as a construal level manipulation ($N = 29$). Participants were randomly assigned to either the distant- or the near-future condition and given the same product information as in the main study. They indicated how abstract the information about the laundry detergent was on a seven-point scale (1 = “not at all,” and 7 = “very much”). A one-way ANOVA indicates that those in the distant-future condition rate the product descriptions as more abstract ($M = 4.47$) than those in the near-future condition ($M = 3.14$; $F(1, 28) = 6.18, p < .05$), suggesting that our manipulation of construal level is appropriate.

After reading the message, participants in the main study evaluated the Fresh Start brand on a series of seven-point scales: “bad/good,” “negative/positive,” “unfavorable/favorable,” “not at all unappealing/extremely unappealing” (reverse coded), and “not at all likely to buy/very likely to buy.” Participants then indicated their subjective experience of fluency in processing the product information on a seven-

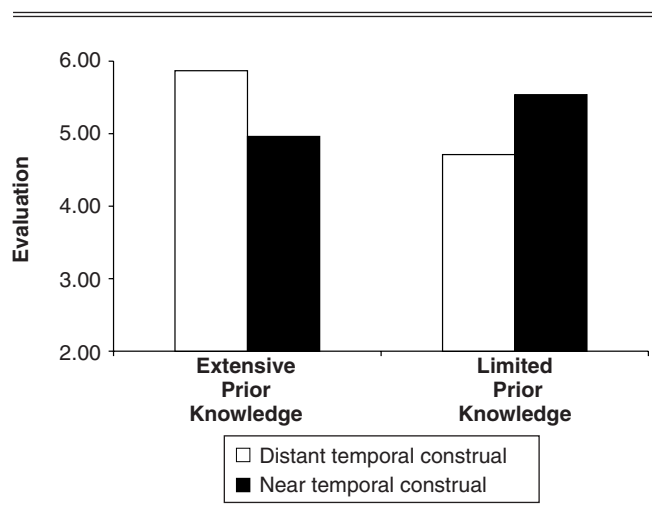
point scale (1 = “not at all difficult to process,” and 7 = “very difficult to process”; reverse coded). Finally, we assessed participants’ prior knowledge of laundry and laundry detergent using the same quiz that we employed in Study 1.

Results and Discussion

Prior knowledge. To assess participants’ prior category knowledge, we coded their responses to the 12-item quiz in the laundry category (correct response = 1, incorrect response = 0) and then added their scores on the quiz items to calculate their prior knowledge score ($M = 8.82$). We used a median split to categorize participants as those with extensive prior knowledge and those with limited prior knowledge ($Mdn = 9$). Gender has a marginally significant effect on participants’ prior knowledge, such that female participants ($M = 9.19$) are more knowledgeable than male participants ($M = 8.48$; $F(1, 54) = 3.35, p < .08$). Among those with extensive prior knowledge, 64.3% were women and 35.7% were men. Among those with limited prior knowledge, 33.3% were women and 66.7% were men.

Evaluation. We calculated an evaluation score by averaging participants’ responses on the five evaluation items ($\alpha = .76$). To determine whether we replicated the fit effects between prior knowledge and level of construal from Study 3, we performed a 2 (prior knowledge: extensive versus limited) \times 2 (temporal construal: distant versus near) ANOVA on participants’ evaluation of the laundry detergent. The main effects of prior knowledge ($F(1, 51) = 1.56, p > .20$) and temporal construal ($F < 1$) are not significant. However, the interaction between these factors is significant ($F(1, 51) = 13.75, p = .001$; see Figure 4). As we predicted, those with extensive prior knowledge of laundry and laundry detergent evaluate the product more favorably when the product benefits accrue in the distant future ($M = 5.87$) than in the near future ($M = 4.96$; $F(1, 51) = 7.43, p < .01$). In contrast, those with limited knowledge express more favorable evaluations when the product benefits manifest in the near future ($M = 5.54$) than in the distant future ($M = 4.71$; $F(1, 51) = 6.34, p < .05$).

Figure 4
BRAND EVALUATION AS A FUNCTION OF PRIOR KNOWLEDGE AND TEMPORAL CONSTRUAL (STUDY 4)



Because we find a gender effect on participants' prior laundry knowledge, we also conducted a 2 (gender: male versus female) \times 2 (temporal construal: distant versus near) ANOVA on evaluation to examine whether gender can account for our results. Neither the main effect of gender ($F(1, 52) = 2.08, p > .15$) nor temporal construal ($F < 1$) is significant. The interaction between these factors also is not significant ($F(1, 52) = 1.51, p > .20$). These findings suggest that the effects of fit between prior knowledge and temporal construal on evaluation cannot be accounted for by gender.

Subjective experience. To test the hypothesis that the effect of fit between prior knowledge and temporal construal on judgment is mediated by participants' subjective experience of fluency in processing the product information, we performed a mediation analysis using the procedure that Baron and Kenny (1986) developed. First, we created a dummy variable of fit between prior knowledge and temporal construal (0 = no fit; 1 = fit) and regressed participants' evaluation scores on this dummy variable. The analysis indicates the presence of a significant effect of fit on evaluations ($\beta = .44, t = 3.60, p = .001$). Second, we regressed participants' subjective experience of processing fluency on fit; fit is a significant predictor of processing fluency ($\beta = .44, t = 3.56, p = .001$). Third, processing fluency has a significant effect on evaluation ($\beta = .62, t = 5.85, p < .001$). Fourth, when we include both the dummy variable of fit and participants' subjective experience of processing fluency to predict evaluation, processing fluency remains a significant factor ($\beta = .53, t = 4.50, p < .001$). However, the coefficient for fit declines significantly ($\beta = .21, t = 1.80, p < .08$; Sobel [1982] test $z = 3.04, p < .01$). These results offer support for the contention that a subjective experience of processing fluency mediates the fit effects of prior knowledge and temporal construal on evaluations.

Consistent with the findings we reported for Study 3, Study 4 demonstrates that participants with extensive prior category knowledge indicate more favorable evaluations when the product information is represented at a high level of construal (operationalized by product benefits that accrue in the distant future) than when it is represented at a low level of construal (operationalized by product benefits in the near future); the opposite effects occur for those with limited prior knowledge. Thus, the results of Study 4 offer additional testimony in support of the knowledge fit hypothesis because they demonstrate that fit between prior knowledge and the level of construal of the message induces more favorable evaluations than would occur in the absence of fit (H_2). Moreover, in a replication of the results of Study 2, we find that a subjective experience of fluency arising from processing the product information mediates the effects of fit on evaluations.

GENERAL DISCUSSION

In four studies, we examined the knowledge fit hypothesis, which states that a correspondence between consumers' prior category knowledge and the way they process message information increases the favorableness of their evaluations. Consistent with our hypothesis, we find that consumers with extensive prior knowledge evaluate the product more favorably when their information processing prompts their perception of progress toward a goal (Studies 1 and 2) and when the information is represented at a high level of con-

strual (Studies 3 and 4). In contrast, consumers with limited prior knowledge offer more favorable evaluations when the information processing mode suggests assessment (Studies 1 and 2) and the product information is represented at a low level of construal (Studies 3 and 4). These effects occur whether we measure consumers' prior knowledge (Studies 1, 3, and 4) or manipulate it (Study 2) and whether the product category refers to laundry detergent (Studies 1 and 4) or MP3 players (Studies 2 and 3). Furthermore, we find that the effects of fit between consumers' prior knowledge and information processing styles on evaluation are mediated by the subjective experience of fluency, which results from processing the product information (Studies 2 and 4).

From a theoretical standpoint, this research extends the analysis of consumers' prior knowledge by suggesting multiple routes through which prior knowledge can enhance evaluation favorableness. As documented previously, one route involves content that is compatible with a person's level of prior knowledge (Maheswaran and Sternthal 1990; Roehm and Sternthal 2001; Sujun 1985). Along these lines, consumers with extensive prior knowledge are more persuaded when the message content includes attributes rather than benefits (Maheswaran and Sternthal 1990) and when new product descriptions use an analogy rather than a literal similarity (Roehm and Sternthal 2001). Consumers with limited prior knowledge exhibit the opposite pattern of preferences.

The studies we report herein suggest that prior knowledge also can influence judgments through a second route. That is, when information is processed in a manner that fits the proclivities of people's prior knowledge, they experience a subjective feeling of processing fluency, which results in more favorable evaluations of a brand than would occur were fit absent (Studies 2 and 4). By documenting the mediating role of the subject experience of fluency, we provide evidence for the metacognitive nature of these effects; they are based on a reflection of the process through which a judgment is made rather than just on the information content.

More generally, the results add to the growing number of demonstrations that a fit between self-regulatory orientations and the means of goal pursuit results in more favorable judgments than those that occur in the absence of fit (Avnet and Higgins 2003; Camacho, Higgins, and Luger 2003; Cesario, Grant, and Higgins 2004; Lee and Aaker 2004). Similar to the fit effects observed for self-regulatory orientations, such as regulatory focus (Camacho, Higgins, and Luger 2003; Cesario, Grant, and Higgins 2004; Lee and Aaker 2004) and regulatory mode (Avnet and Higgins 2003), our studies indicate a potential fit between prior knowledge and message processing strategies related to regulatory modes and construal levels. These findings raise the possibility that consumers' prior knowledge activates a self-regulatory orientation that guides their subsequent activity. Findings related to the impact of expertise on the regulation of motor skills also are consistent with this view (Ferrari et al. 1991). For example, elite marathon runners focus more on cues unrelated to the activity (e.g., music, surrounding scenery) to dissociate themselves from unpleasant bodily cues while running, whereas less experienced runners focus their attention more on the bodily stimuli associated with running (Wrisberg and Pein 1990).

This research also has implications for marketing practice. Our findings suggest the use of different message pro-

cessing strategies when targeting consumers with extensive versus limited category knowledge. Specifically, when the target market includes consumers with extensive prior knowledge, high-level construals that promote the desirability of the brand benefits are likely to be persuasive, whereas marketing that targets people with less knowledge should emphasize low-level construals that address the feasibility of the product benefits. For example, an advertisement for E*TRADE published in the *Wall Street Journal* (whose audience includes many readers with extensive investment knowledge) focused on desirability benefits, such as customizable platforms and high-powered ways to trade. In contrast, in the “Why Choose E*TRADE” page on the company Web site (which targets a general audience that likely includes consumers with limited category knowledge), the message emphasizes the feasibility of using E*TRADE, including its ease of use and access to knowledgeable customer representatives.

Alternatively, construal level can be made operational through the introduction of alignable and nonalignable features because high-level construals rely more on nonalignable features than on alignable ones, and vice versa (Malkoc, Zauberan, and Ulu 2005). Therefore, marketers should promote nonalignable features when targeting knowledgeable consumers but focus on alignable features when targeting those with limited knowledge. In line with this observation, in Apple’s Mac versus PC advertising campaign, the spots that highlight the Mac’s nonalignable attributes, such as its new backup features, should target those with substantial computer knowledge, whereas the spots that emphasize alignable attributes, such as the speed of the Mac versus PC operating systems, are more appropriate when the target has relatively limited computer knowledge.

The findings also indicate that processing mode might help segment consumers with extensive versus limited prior category knowledge. For those with extensive knowledge, providing a sense of progress toward the goal fits with their orientation, whereas for those with limited knowledge, assessment and comparison offers a means of fit. Online retailers often present both of these modes and allow consumers to determine which one to select. For example, when shopping for a camcorder on www.bestbuy.com, a consumer can choose either the “Camcorder Finder,” which offers a step-by-step tool that narrows the choice alternatives during each step in response to the consumer’s specific criterion for a certain attribute, or the comparison tool, which provides a side-by-side comparison of the features available for alternative brands. Our research suggests that evaluations of the preferred alternative will be more favorable if potential customers turn to the page that best reflects their prior knowledge—that is, the “Camcorder Finder” for those with extensive knowledge and the comparison tool for those with limited knowledge. Moreover, the results of Study 2 suggest that marketers could use educational campaigns to equip consumers with more prior category knowledge and then roll out advertising campaigns that accommodate these greater knowledge levels.

However, caution is warranted in applying these strategies. As Shanteau (1992) suggests, the effect of prior knowledge on people’s processing proclivities and decision strategies often depends on the characteristics of the task at hand.

The stimuli in the current research involved product categories that are associated with limited risk (i.e., MP3 players and laundry detergent). Whether the same outcomes would occur for product categories with more substantial financial or social risks is unclear. In high-risk situations, even consumers with extensive prior knowledge may be motivated to engage in detailed consideration of stimulus information. This conjecture is consistent with research findings that show that people with extensive prior knowledge engage in more detailed processing when they are sufficiently motivated to do so (Johnson and Russo 1984; Wood and Lynch 2002). Thus, the boundary conditions for the effects of fit between prior knowledge and information processing styles warrant further investigation.

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