

TELL ME WHAT I DID WRONG:
EXPERTS SEEK AND RESPOND TO NEGATIVE FEEDBACK

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A large proportion of marketing communication concerns feedback to consumers. This article explores what feedback people seek and respond to. We predict and find a shift from positive to negative feedback as people gain expertise. We document this shift in a variety of domains including feedback on language acquisition, pursuit of environmental causes, and use of consumer products. Across these domains, novices sought and responded to positive feedback, and experts sought and responded to negative feedback. We examine a motivational account for the shift in feedback: positive feedback increased novices' commitment and negative feedback increased experts' sense that they were making insufficient progress.

Feedback is essential for individuals pursuing their goals. Without it, individuals would not know whether, what, and how much to invest in their goals (Ashford, Blatt, and Van de Walle 2003; Frey and Ruble 1987; Kruglanski 1990; Miller and Ross 1975; Swann and Read 1981; Wood 1989). Accordingly, a large proportion of marketing communication involves collecting information on consumers and providing tailored feedback. For example, language programs provide feedback to consumers on their mastery of a foreign language, skin-product salespeople advise customers on how to improve their skin-care regimen, and media campaigns provide feedback to the public on the effectiveness of environmental actions. Given the pervasiveness of feedback in marketing communication, understanding what feedback consumers seek and how they respond to it as they gain experience is important. In particular, we examine whether, as consumers accumulate knowledge or gain experience, their interest and response to feedback changes.

Generally speaking, we distinguish between positive feedback on strengths, correct responses, and accomplishments, and negative feedback on weaknesses, incorrect responses, and lack of accomplishments. For these two types of information to constitute “feedback,” they need to be constructive: positive information should not be needlessly flattering and negative information should not be unnecessarily detrimental. Instead, both types of feedback should be beneficial by suggesting corrective actions (see, e.g., Dweck and Leggett 1988). For example, positive feedback will emphasize a consumer’s correct use of cosmetic products and negative feedback will emphasize her incorrect use of these products and how she can improve.

In this article, we explore whether expertise (perceived or actual) influences the type of feedback individuals seek and respond to. In what follows, we present our theory and findings in support of a shift toward seeking and responding to negative feedback with increased expertise.

THEORETICAL BACKGROUND

Whether people acquire a new skill, learn to use a new product, or seek to improve their behavior, both positive and negative feedback can allow for realistic self-assessment and adjustment of their efforts (Carver and Scheier 1998; Higgins 1987; Maheswaran and Meyers-Levy 1990). Clearly, additional reasons exist for why people might seek feedback, including enhancing and maintaining their positive view of themselves (Russo, Meloy, and Medvec 1998; Tormala and Petty 2004). For example, people seek positive information about products they are already using because such information provides positive feedback that confirms their choices (Ahluwalia, Burnkrant, and Unnava 2000; see also Wood, Rhodes, and Biek 1985). However, when people wish to change or improve their actions, the motivation to enhance a positive view is often secondary to the motivation to realistically assess their skills and gain a sense of which direction they should pursue (Trope 1986).

With the objective of accurate self-assessment in mind, both (constructive) positive and negative feedback on one's performance are potentially useful and people might differentially attend to positive and negative feedback over the course of gaining experience or expertise on a goal. For example, to maintain the motivation to improve, a person who is looking to master a new language might desire different types of feedback at different points over the course of learning the language. Our main proposition is that as people gain expertise in pursuing a goal, they seek and respond more to negative than to positive feedback. In what follows, we explore the possible reasons the shift occurs and identify our leading reason—a motivational explanation—which we explore in our studies.

A SHIFT TOWARD NEGATIVE FEEDBACK

One potential reason we could predict an increase in seeking and responding to negative feedback is that the informational value of the feedback could differ for novices and experts. People can learn more from feedback on unusual performance than usual performance. According to this potential account, positive feedback might be rarer and therefore more informative for novices—those who are less likely to perform a task well—whereas negative feedback might be rarer and therefore more informative for experts—those who are unlikely to perform poorly (Ashford and Tsui 1991; Tesser 1988). For instance, a beginning piano player is less likely to play a piece of music perfectly; she is likely to make many mistakes. For this player, who rarely plays the right note at the right time, hearing she played a series of notes correctly is more informative than a series of correct notes would be for a professional piano player who already knows he plays most of the notes correctly. On the other hand, a professional piano player is unlikely to miss notes. Hearing he missed some notes is rare and carries more value than missed notes would carry for a novice.

Whereas the informational account could potentially create a shift toward seeking and responding to negative feedback as people gain expertise, it holds only to the extent that novices and experts are evaluated on a similar scale. On that scale, novices would indeed perform poorly more frequently than experts. However, if the evaluation scales are different (Brown and Hanlon 1971), novices do not perform poorly more frequently than experts and negative feedback is not more frequent for them. For example, a professional piano player expects to be evaluated based on his ability to express his emotions, and his likelihood of succeeding should not be higher than

the amateur pianist, who expects to be evaluated based on her ability to play the right notes. Because different scales are applied, negative feedback is not less frequent for experts and if a shift toward negative feedback with expertise exists, an informational account cannot explain it.

We propose instead a motivational account for the shift. The motivational account suggests the meaning people derive from feedback on their goals changes over time and people seek either positive or negative feedback depending on its meaning and its ability to serve as a motivational tool that allows them to focus on tasks at hand. Specifically, feedback can either inform individuals of their level of commitment to or their rate of progress toward the goal (Fishbach and Dhar 2005; Fishbach, Zhang, and Koo 2009). When feedback informs people of their commitment, it provides information on the value of a goal and one's likelihood of success (Bandura 1991; Feather 1982; Fishbein and Ajzen 1975; Förster, Liberman and Higgins 2005; Vroom 1964). In this case, positive feedback on one's accomplishments (e.g., that a person answered some answers correctly) is more motivating because it signals that the goal is valuable or that one's likelihood of attaining the goal is high. In contrast, when feedback informs people about their rate of progress, it provides information about the rate of progress relative to expectations (Carver and Scheier 1998; Higgins 1987; Locke and Latham 1990; Miller, Galanter, and Pribram 1960). In this instance, negative feedback (e.g., that a person responded incorrectly) increases motivation because it signals insufficient progress. For example, a student who wishes to motivate herself to study for an exam would seek positive feedback if she wants to increase her commitment but negative feedback if she wants to encourage herself to progress at a more sufficient pace.

Earlier research by Koo and Fishbach (2008) demonstrated that the meaning of feedback indeed determines its motivational impact. These researchers compared feedback on completed

versus missing actions toward a goal, which could represent positive versus negative feedback. They found that uncommitted individuals, who infer their level of commitment from feedback, worked harder after getting feedback on completed actions. In contrast, committed individuals, who infer their progress from feedback, worked harder after getting feedback on missing actions. For instance, uncommitted individuals (those on the “cold list”) donated more to a charitable organization when they read that the charity had raised \$5,000 thus far, whereas committed individuals (those on the “cold list”) donated more when they read the charity still needed to raise \$5,000.

Building on this previous research, we predict that as people gain expertise, their way of motivating themselves through feedback seeking changes. Thus people move from evaluating commitment to monitoring progress as they gain expertise and seek more negative feedback. Compared with experts, novices feel uncertain about their levels of commitment. Positive feedback on novices’ goal pursuit instills a sense of confidence that they can perform the goal and encourages novices to internalize or integrate new goals into their self-concept, thus increasing their commitment to pursue the goal on subsequent occasions (Ryan and Deci 2000). However, experts’ commitment is more secure than novices’ and their focus is on monitoring their progress. Negative feedback signals experts should increase their efforts.

By this analysis, the same feedback (e.g., “you have a good skincare regimen”) can either convey the extent of commitment to pursuing the goal or how much progress one has made toward the goal, and the meaning and its motivational consequences depend on a person’s expertise level. When novices hear they do well, they infer that their goals are valuable and their expectancy of attainment is high; that is, they interpret that feedback to mean they are committed to the goal. In contrast, when experts hear the same feedback, they interpret that feedback as

signaling they have invested enough effort toward pursuing their goals and thus have made sufficient progress. For example, Louro, Pieters, and Zeelenberg (2007) found that positive feedback motivated dieters who were far from their weight-loss goal, and we assume such feedback increased their goal commitment. In addition, in the authors' study, negative feedback motivated those who were close to their weight-loss goal, and we assume such feedback increased dieters' sense of insufficient progress.

Assuming positive feedback has a greater impact on novices than experts and negative feedback has a greater impact on experts than novices, we predict that experts will actively seek more negative feedback than novices, whereas novices will actively seek more positive feedback than experts. We further predict that experts will increase their efforts more than novices in response to negative feedback, whereas novices will increase their efforts more than experts in response to positive feedback.

These hypotheses extend existing theory on feedback on self-regulation (Koo and Fishbach 2008) to the domain of consumer expertise in a few notable ways. First, we predict that expertise (rather than prior commitment) creates a shift toward negative feedback. Second, we predict effects on feedback seeking, thus moving beyond the impact of feedback on peoples' responses. Third, we predict a dynamic process where, as people gain expertise, they seek more negative feedback. Finally, whereas earlier work studied only one aspect of feedback (missing vs. completed actions), we focus on other, more explicit aspects of feedback (e.g., correct vs. incorrect actions).

PRESENT RESEARCH

We report five studies that test the hypotheses that expertise is associated with seeking and responding to negative feedback. Prior research used various paradigms to assess expertise,

including the frequency of performing goal-related actions (Bettman and Park 1980; Kiel and Layton 1981), prior knowledge (Hong and Sternthal 2010), and formal training (Hutchinson 1983; for summary, see Alba and Hutchinson 1987). In our studies, we rely on these various definitions to operationalize expertise. We both measure expertise (studies 1–2) and manipulate expertise (studies 3–5). In studies 1 and 2, we compare experts who frequently engage in a goal with novices who do not. Because individual differences associated with self-selection might drive the preference for feedback, in studies 3–5, we manipulate expertise. Altogether, expertise in our studies is defined in a way that generalizes across various lines of earlier work (see table 1).

Specifically, in study 1, we explore the impact of expertise on the feedback-seeking behavior of students in beginning- versus advanced-level French classes. In study 2, we explore the impact of expertise in pursuing environmentally friendly actions on feedback seeking as well as the tendency to respond to feedback by donating to an environmental organization. In study 3, we examine how perceived expertise impacts feedback seeking on women's use of beauty products and how feedback influences their willingness to pay for such products. In study 4, we examine changes in feedback-seeking behavior and the meaning that feedback conveys (progress vs. commitment) over time as participants gain expertise with an unfamiliar language task. Finally, in study 5, we examine how perceived expertise influences endorsement of persuasive messages on the collective performance of a shared environmental goal.

STUDY 1: LANGUAGE CLASSES

Consumers invest resources, including effort, time, and money, acquiring new skills such as learning a new language and, in the process, seek positive and negative feedback on their performances (Ward 1974). To explore the impact of expertise, we investigated feedback seeking among American students enrolled in beginning- and advanced-level French classes. We predicted that compared with those in advanced level classes (experts), beginners would express greater interest in learning from an instructor who teaches using a style that emphasizes what they do well. In addition, compared with beginners, advanced students would express greater interest in learning from an instructor who teaches using a style that emphasizes their mistakes and how they can improve.

Method

Eighty-seven undergraduate students volunteered to participate in the study immediately after their French class. This study employed a 2 (expertise: beginner vs. advanced level French class students) \times 2 (feedback: positive vs. negative) mixed design in which expertise was a between-subjects factor and feedback was a within-subjects factor.

The experimenter surveyed American students in beginning-level conversational French classes and advanced-level French literature classes. We assumed students enrolled in a class titled “beginning level” saw themselves (and were referred to by others) as relative novices, whereas those enrolled in a class titled “advanced” saw themselves as relative experts. Beginners primarily take classes focused on conversational and grammatical skills and learn material

designed to help them communicate at a basic level. Advanced-level students primarily take classes designed for reading classic French literature in French and writing papers in French that offer insightful analyses of the text.

Participants completed a questionnaire about choosing an instructor, which the French department presumably created to improve instructors' training to better meet student needs. Participants read that two basic styles of teaching exist: one style is for an instructor to "emphasize what students do well in class by providing the student with feedback on their strengths, like when they pronounce new words well or write well in French" (positive feedback), and the other style is for the instructor to mostly provide negative feedback on "what mistakes they make when, for instance, pronouncing new words, conjugating new verbs, or writing and how they can fix those mistakes" (negative feedback).

As a measure of feedback seeking, participants rated their interest in taking a class with an instructor who teaches using each particular style (for each instructor: 1 = *not at all*, 7 = *very much*). They then listed, among other demographic information, how long they had been taking French classes (in months).

Results and Discussion

In support of the manipulation, students in the advanced, literature classes indicated they had studied French for a longer time ($M = 78.64$ months, $SD = 43.38$) than students enrolled in beginning-level classes ($M = 25.29$ months, $SD = 27.05$; $t(72) = 5.52$, $p < .001$).

To test the hypothesis, we compared participants' interest in taking a class with an instructor who uses a style emphasizing what they do well versus one who uses a style emphasizing how they can improve, as a function of their expertise. These measures were not

correlated ($r(85) = .05$), suggesting participants' interest in positive feedback and their interest in negative feedback were largely independent of each other. An expertise \times feedback repeated measures ANOVA yielded a main effect for feedback, indicating participants preferred an instructor who uses a style emphasizing negative feedback on what mistakes they make and how they can improve ($F(1, 79) = 6.43, p < .02$). We found no main effect for expertise. The analysis also yielded the predicted expertise \times feedback interaction ($F(1, 79) = 7.31, p < .01$). Contrast analysis revealed that beginners expressed greater interest than advanced students in an instructor who uses a style that emphasizes what they do well ($M = 4.96, SD = 1.15$ vs. $M = 4.25, SD = 1.47; t(79) = 2.35, p < .05$). Additionally, advanced students were marginally more likely than novices to express an interest in an instructor who uses a style that emphasizes negative feedback on how they can improve ($M = 5.45, SD = 1.22$ vs. $M = 4.92, SD = 1.29; t(79) = 1.76, p = .08$; see figure 1).

These results are consistent with the hypothesis that novices seek positive feedback more than experts, presumably because they more likely infer greater commitment, whereas experts seek negative feedback more than novices, presumably because they more likely infer insufficient progress.

Experts also seek more negative feedback than novices because they can tolerate negative feedback more easily—negative feedback does not undermine their commitment (e.g., expertise acts as buffer; Linville 1987; Raghunathan and Trope 2002; Trope and Neter 1994). We argue that in addition to tolerating negative feedback, experts actively seek negative feedback to motivate themselves to invest effort in a goal. To demonstrate the latter point, we compared experts' interest in positive and negative feedback. We found that students in the advanced course expressed greater interest in an instructor who uses a style that emphasizes how they can

improve ($M = 5.45$, $SD = 1.22$) than an instructor who uses a style that emphasizes what they do well ($M = 4.25$, $SD = 1.47$; $t(54) = 4.44$, $p < .001$); hence, in this study, experts not only tolerated constructive negative feedback but preferred it over constructive positive feedback. Interestingly, even novices were not averse to negative feedback. They were similarly interested in negative and positive feedback, which further suggests people are interested in constructive negative feedback, and they seek it more to the extent that they perceive themselves as experts.

In addition to their course enrollment, we evaluated participants' expertise based on the amount of time they had studied French prior to the study. This variable was highly skewed; thus we log transformed it. Collapsing across the types of classes, the longer students had been enrolled in French classes, the greater their interest in an instructor who uses a style that emphasizes how they can improve ($r(77) = .31$, $p < .01$). Similarly, the longer students were enrolled in French classes, the lower their interest in an instructor who uses a style that emphasizes what they do well, though this effect was marginal ($r(77) = -.19$, $p < .10$). These correlations provide further support for our hypothesis and rule out an alternative explanation—that the different content of the advanced- and beginning-level courses affected the feedback students sought.

Study 1 demonstrates that experts seek more negative feedback and less positive feedback than novices. We predict that expertise further impacts how people respond to feedback. Accordingly, our next study tested for feedback seeking and how people respond to feedback as a function of their expertise.

STUDY 2: ENVIRONMENTAL ACTIONS

We conducted study 2 to examine whether expertise in pursuing environmentally friendly actions increases interest in negative feedback on how people can improve their actions, and whether expertise further increases the tendency to respond to negative feedback by donating to an environmental organization (Greenpeace).

We defined expertise as frequency of performing goal-related actions—a concept we measured by comparing members of environmental organizations (experts) with those who are not members (novices). Participants listed things they do to help the environment (e.g., reducing waste and conserving energy) and indicated their interest in feedback on either their effective or ineffective environmental actions. Thus, in this and subsequent studies, we posed a tradeoff between seeking positive and negative feedback. In a later session, we manipulated the feedback participants received (regardless of what they originally sought) and assessed its impact on their willingness to donate to Greenpeace, an environmental charity. We predicted that environmental experts would be more interested in negative feedback and upon receiving negative feedback, would increase their donations more than novices would.

Method

Eighty-one students (53 women) participated in the study for a chance to win \$25 in a lottery. The study employed a 2 (expertise: novice vs. expert) \times 2 (feedback: positive vs. negative) between-subjects design. We recruited individuals who were frequent attendees of several environmental organizations on campus (experts) and individuals who did not participate

in any environmental organizations (novices). They all took part in an online study on environmental issues.

We conducted the study in two sessions. In the first session, participants listed the things they do to help the environment. The format was open-ended and participants listed about 5–10 things they do—for example, recycling paper, cans, and plastic bottles and trying not to waste water. Participants next read that an environmental consultant would evaluate their responses and was willing to provide them with feedback on their actions. Because the consultant's time was limited, the consultant was willing to offer them feedback on either their effective or ineffective actions but not both. Participants indicated their feedback choice (between (a) their actions that are effective for helping the environment and (b) their actions that are ineffective for helping the environment) and provided their email addresses so the experimenter could contact them for the second session of the study.

The second session took place two weeks after the first to reduce the likelihood of participants recalling which feedback they asked for, a procedure that allowed us to randomize the feedback regardless of what participants sought in the first part of the study. Participants received an email reminding them of the activities they had previously listed that indicated how they helped the environment. The email contained a link to an external website where participants would purportedly receive feedback on their habits.

Unbeknownst to participants, the content of the negative or positive feedback participants received on each trial was predetermined and equally informative. Because all participants wrote about recycling, the feedback referred to participants' recycling habits. Participants assigned to receive positive feedback about their effective actions read that their recycling habits reduce the amount of materials and energy manufacturers need to make goods, whereas participants

assigned to receive negative feedback about their ineffective actions read that their recycling habits are ineffective as certain items are not easily recycled. Consequently, they could improve their habits by taking more care to sort items before placing them in the recycling bin. Thus the feedback framed participants' own recycling actions either positively or negatively.

Next, participants were reminded that as payment for the study, they would be entered in a lottery to win \$25. Our variable of interest was how much of their future earnings, if they were to win, participants would donate to Greenpeace. Participants were then debriefed and dismissed. In their debriefings, none of the participants expressed suspicion that the feedback was not individually tailored.

Results and Discussion

In support of the hypothesis, expert environmentalists sought negative feedback more often (92%) than novices (74%; $\chi^2(1) = 3.81, p = .05$). This result confirms that when facing a tradeoff in feedback seeking, experts express a greater interest in negative feedback than novices.

We next explored how experts versus novices respond to feedback. To measure response to feedback, we examined whether participants agreed to contribute some of their lottery earnings (if they were to win) to Greenpeace and how much. In support of the hypothesis, an ANOVA on donation amounts (we coded no donations as zeros) yielded the predicted expertise \times feedback interaction ($F(1,77) = 16.24, p < .001$) and no main effects. Contrast analysis revealed that experts who received negative feedback agreed to donate more ($M = \$8.53, SD = \9.54) than novices who received the same feedback ($M = \$1.24, SD = \$2.46; t(44) = 3.75, p < .001$). We obtained the reverse pattern for positive feedback: novices who received positive

feedback donated more ($M = \$8.31$, $SD = \$8.81$) than experts who received the same feedback ($M = \$2.92$, $SD = \$6.23$; $t(33) = 2.12$, $p < .05$, see figure 2).

We found a similar pattern for response rates. We analyzed the proportion of participants who agreed to donate anything from their potential future earnings. Experts who received negative feedback were more likely to donate to Greenpeace (76%) than were novices who received the same feedback (30%, $\chi^2 = 8.85$, $p < .01$). Conversely, novices who received positive feedback were more likely to donate (81%) than were experts who received the same feedback (37%, $\chi^2 = 7.00$, $p < .01$)

Recall that we randomized the feedback participants received such that some participants received feedback different from what they initially requested (e.g., they requested negative feedback but received positive feedback). To test whether our effect was limited to those who received feedback that matched their preferences, we conducted another analysis with participants' original choice—whether it matched the feedback they received versus not—as an additional variable. The three-way expertise \times feedback \times match interaction was not significant ($F < 1$), indicating a similar expertise \times feedback interaction among those who received feedback that matched their request and those who did not.

Study 2 extends our results to the environmental domain: experts are more interested in negative feedback than novices. It further yields support for the hypothesis that experts respond more to negative feedback than novices, as measured by donations to Greenpeace. Conversely, novices respond more to positive feedback than experts. This last effect can have ironic consequences: we find that after receiving positive feedback, those who care less about the environment are more willing to take action.

One alternative explanation is that experts are more confident in goal attainment and that increased confidence in goal attainment, rather than increased expertise, drives the shift toward negative feedback. We propose that experts seek and respond more to negative feedback because they are more committed, and therefore, feedback conveys to them they have made insufficient progress and need to work harder to achieve their environmental goals. By commitment, we mean that experts value the goal and are confident about their ability to pursue it (i.e., high sense of self-efficacy, Bandura 1991). However, experts are not necessarily more confident than novices that they will achieve the goal and might even be more pessimistic than novices about goal attainment.

Indeed, in a follow up, participants from the same environmental organizations and campus populations ($N = 74$) indicated how (a) confident and (b) optimistic they were that humans would respond well to future environmental crises ($1 = \textit{Not at all Confident/Optimistic}$; $7 = \textit{Very Confident/Optimistic}$). We asked about the group's (humans) ability to respond to future environmental issues because of a unique feature of environmental goals, namely, that society as a whole, rather than one individual, must take action for goals to be achieved. We collapsed these items ($r = .46, p < .05$) and found that members of environmental organizations (experts) were less confident and optimistic than novices that humans would respond well to future environmental crises ($M = 2.13, SD = .66$ vs. $M = 2.64, SD = 1.09$; $t(71) = 2.06, p < .05$). Notably, these results echo research by Kruger and Dunning (1999), which finds that those who know the least (often novices) are the most over-confident in their ability, often to the point where they do not differ from experts in their perceived ability to pursue a goal and success expectations.

In studies 1 and 2, we measured expertise through group affiliation (i.e., course, environmental organization). Because group affiliation was measured rather than manipulated, it may have been associated with other individual-difference variables, and our ability to infer that expertise caused the search for negative feedback is somewhat limited. Moreover, group affiliation may have been directly associated with goal commitment. Accordingly, the rest of our studies operationalized expertise using a standard definition of this concept as reflecting frequency of performing goal-related actions, training, and knowledge (Alba and Hutchinson 1987). These operationalizations allow us to distinguish between expertise and its consequences for goal commitment. We further propose that people's perceptions that they are experts, rather than their actual knowledge or experience, drive our effects. Hence, in study 3, we test whether making people feel like experts will influence them to seek and respond more to negative feedback than those who feel like novices.

STUDY 3: BEAUTY PRODUCTS

Study 3 examines how perceived expertise impacts consumers' interest in feedback on their use of beauty products and how such feedback influences their subsequent use of such products. We focused on women's use of nail-care services, a burgeoning industry that pulls in roughly \$1 billion in revenue per year and is a rapidly growing market (packagedfacts.com). We manipulated perceived expertise using social comparison information (Schwarz et al. 1985). Because frequent consumption increases people's perception that they are experts in using some products (Bettman and Park 1980; Kiel and Layton 1981), we asked participants to rate their frequency of performing nail-care activities, using scales that made them feel they were either

frequent users (experts) or infrequent users (novices). As our dependent measures, participants in study 3a chose between positive and negative feedback on their nail-care habits and participants in study 3b indicated their willingness to pay for a manicure, a nail-care activity, after receiving positive versus negative feedback. Unlike study 2, we separated the samples in studies 3a (seeking feedback) and 3b (responding to feedback) to avoid situations in which participants are assigned to receive different feedback than what they selected. We predicted that those who perceived they frequently performed nail-care activities (experts) would seek more negative feedback than novices (study 3a) and would respond more to negative feedback by expressing a higher willingness to pay for a manicure than novices who received the same negative feedback (study 3b).

Study 3a: Feedback Seeking

Method. Seventy-three women participated in the study for monetary compensation. We enrolled only women because nail-care habits and manicures are of broader interest to women than to men. The study employed a 2 (expertise: novice vs. expert) between-subjects design.

Participants completed a study on women's nail-care habits, presumably as part of a broader study on women's habits regarding cosmetic products and services. The first part of the survey manipulated expertise via social comparison scales. Those who were made to feel they perform nail-care activities infrequently (novices) responded to the following questions: (a) How often do you get a manicure at a nail salon or beauty parlor? (b) How often do you get a pedicure at a nail salon or beauty parlor (for (a) and (b): 1 = *Less than twice a month*, 2 = *2-3 times a month*, 3 = *once a week*)? and (c) How often do you paint your finger- or toenails by yourself (1

= *Less than twice a month*, 2 = *2-3 times a month*, 3 = *once a week*)? Those who were made to feel they perform nail-care activities frequently (experts) responded to the same questions on different response scales (for manicure and pedicure items: 1 = *Less than once every 2 years*, 2 = *once every 2 years*, 3 = *more than once every 2 years*; and for do-it-yourself: 1 = *Less than once every 2 years*, 2 = *once every 2 years*, 3 = *more than once every 2 years*). All participants further listed how often they get manicures, pedicures, and paint their own finger- or toenails (open questions). Using these scales, novice participants were more likely to choose responses on the lower end of the scale and thus feel inexperienced, whereas expert participants were more likely to choose responses on the higher end of the scale and thus feel relatively experienced. As a manipulation check, participants indicated whether they feel they often perform nail-care activities (1 = *Strongly Disagree*, 7 = *Strongly Agree*).

After completing the expertise manipulation, participants took a few minutes to list in a space roughly half a page in length what they do to maintain the health of their nails. They listed, for example, that they drink plenty of water, moisturize their skin, and use sunscreen to avoid excessive sun exposure. Next participants read that a beauty consultant would evaluate their responses and would be available to provide them with feedback on either the nail-care habits they do well or the way they can improve their nail-care actions. Participants read that because the consultant's time was limited, they could only receive one piece of feedback. Participants then indicated their choice of either positive or negative feedback. Our variable of interest pertained to participants' likelihood of choosing positive versus negative feedback.

Results. In support of the manipulation, participants who perceived themselves as experts indicated they feel they perform nail-care activities more often ($M = 5.11$, $SD = 2.02$) than those who perceived themselves as novices ($M = 4.03$, $SD = 2.44$; $t(73) = 2.06$, $p < .05$).

In support of our hypothesis, participants who perceived themselves as experts were more likely to seek negative feedback (100%) than novices (73.68%, $\chi^2(1) = 10.95$, $p = .001$). Recall that as part of the manipulation, participants also provided open-ended responses regarding how often they get manicures, pedicures, or paint their nails themselves over the course of a year. We averaged these individual-difference variables ($\alpha = .62$) and ran a binary logistic regression of this variable on participants' interest in feedback (0 = chose negative feedback, 1 = chose positive feedback). The regression revealed that the more actual experience women had with nail care, the more likely they were to choose negative feedback ($\beta = -.12$, *Wald* $\chi^2 = 12.66$, $p < .001$). Notably, as we would expect, actual expertise was similar across conditions ($M_{Novices} = 11.42$ times per year, $SD = 14.17$; $M_{Experts} = 9.27$, $SD = 10.19$; $t(71) < 1$, *ns*), thus lending credence to our hypothesis that perceived expertise (which may or may not correspond to actual expertise) drives our effect.

As in previous studies, we find that people are generally open to negative feedback on how they can improve: they mostly prefer nonthreatening negative feedback over positive feedback on what they do well. More relevant for the present investigation, we find that people are more open to negative feedback if they see themselves as experts in a domain. This effect extends our previous results on measured expertise (i.e., French students, environmentalists) to manipulated expertise, allowing us to infer that the perception that one is an expert causes the increase in seeking negative feedback. Next we test for a similar relationship between perceived expertise and responding to negative feedback.

Study 3b: Responding to Feedback

Method. Fifty-three women participated for monetary compensation. The study employed a 2 (expertise: novice vs. expert) \times 2 (feedback: positive vs. negative) between-subjects design.

Participants read similar instructions and completed a similar perceived expertise manipulation, in one of the two conditions, as participants in study 3a. Next they answered several questions regarding their specific habits. The purpose of these questions was to increase the perception that the detailed feedback that followed was reliable and personal. Specifically, participants listed the following: how many glasses of unflavored water they drink every day; how many glasses of coffee, juice, tea, or other flavored beverages they drink; how many times per week, on average, they moisturize their hands (open-ended questions); and how long their finger- and toenails are (1 = *very short*, 5 = *very long*). Finally participants checked off from a list of foods the items they eat that contain calcium (e.g., milk, cheese, spinach, beans, tuna, nuts, tofu, oranges, and oats).

Next participants received positive or negative feedback, depending on the experimental condition. Unbeknownst to participants, the content of the negative or positive feedback participants received on each trial was predetermined and equally informative. Those who were assigned to receive positive feedback read the following: that they do a good job drinking plenty of water, which would keep their nails strong and healthy; that they do a nice job ensuring their hands are moisturized on a weekly basis, which would help maintain their skin's elasticity; that their nails are at a good length, which would help reduce breakage and chipping (if participants indicated their nails are short to medium length), or that being able to grow their nails so long is

a sign of strong, healthy nails (if participants indicated their nails are long); and, finally, that they eat plenty of foods with calcium, a habit that keeps their nails strong and healthy. Overall, the feedback referred to the five pieces of information participants provided.

In comparison, participants assigned to receive negative feedback read the following: that they could improve their nail-care habits by drinking more unflavored and non-caffeinated water, which would help keep their nails strong and healthy; that they could improve their habits by moisturizing their hands more often to help maintain their skin's elasticity; that having short nails is potentially a sign that their nails are not strong and healthy (if they indicated they had short finger or toenails), or that having longer nails makes their nails more prone to breaking and chipping (if they indicated they had medium-length to long finger- or toenails); and, finally, that they could improve their habits by eating more foods with calcium, which would help reduce the likelihood that their nails would break or chip. Thus participants received five pieces of negative feedback on their nail-care actions.

Our key dependent variable was participants' interest in caring for their nails. To measure participants' interest, they indicated their willingness to pay for "a professional manicure at a nail salon or beauty parlor." We presented an open-ended question for willingness to pay (no price range). As a manipulation check, participants then rated how personalized (1 = *not at all personalized*, 7 = *highly personalized*) and reliable (1 = *not at all reliable*, 7 = *very reliable*) the feedback was. Participants were then debriefed and dismissed. In their debriefings, none of the participants expressed suspicion that the feedback was not individually tailored.

Results and Discussion. In support of our manipulation, participants perceived positive and negative feedback as equally reliable ($M_{positive} = 5.46$, $SD = 2.98$ and $M_{negative} = 4.72$, $SD =$

3.06; $t(51) = 1.26$, ns) and personalized ($M_{positive} = 5.11$, $SD = 3.98$ and $M_{negative} = 4.39$, $SD = 4.43$; $t(51) = 1.10$, ns). All four means were significantly higher from the midpoint of the scale (4; $ts > 2.5$, $ps > .01$), indicating that the feedback, overall, was personalized and reliable.

In support of our hypothesis, the ANOVA on participants' willingness to pay for a manicure yielded the predicted interaction ($F(1,49) = 9.20$, $p < .01$) and no main effects. Contrast analysis revealed that experts who received negative feedback expressed a higher willingness to pay for a manicure ($M = \$19.77$, $SD = \$8.21$) than novices who received the same feedback ($M = \$12.47$, $SD = \$8.40$, $t(24) = 2.21$, $p < .04$). We found the opposite pattern for participants who received positive feedback: novices expressed a higher willingness to pay for a manicure ($M = \$17.47$, $SD = \$9.05$) than experts ($M = \11.67, $SD = \$3.89$, $t(25) = 2.24$, $p < .04$; see figure 3).

As in study 3a, we also had information on individual differences in expertise from the open-ended questions included in the expertise manipulation. We averaged these individual-difference variables ($\alpha = .68$) and ran a regression on participants' willingness to pay for a manicure. The regression revealed a main effect of actual expertise ($\beta = .68$, $t = 4.85$, $p < .001$), indicating that the more actual expertise women had with nail care, the more they were willing to pay for a manicure, as well as a main effect for feedback ($\beta = 9.00$, $t = 9.81$, $p < .001$), indicating that participants were more willing to pay for a manicure after getting negative feedback. Finally, the analysis yielded the predicted interaction ($\beta = .37$, $t = 3.93$, $p < .001$), indicating that experts' greater willingness to pay for a manicure more often followed receiving negative feedback than positive feedback.

Taken together, the findings from study 3 demonstrate that those who perceive themselves as experts seek more negative feedback than novices. In addition, upon receiving negative feedback, experts respond more favorably than novices by investing resources (i.e.,

willingness to pay) in pursuit of the goal. In contrast, novices respond more than experts to positive feedback.

We argue that differences in information novices and experts seek underlie the shift toward negative feedback. Novices focus on assessing commitment, of which positive feedback is a stronger signal, whereas experts focus on monitoring progress, of which negative feedback is a greater signal. We have yet to show that expertise changes the meaning individuals derive from feedback on their goal pursuit. Accordingly, in study 4, we explored how expertise moves people from assessing commitment to monitoring progress. Another goal of study 4 was to explore how people's interest in negative feedback increases as they gain expertise with a task.

STUDY 4: LEARNING A NEW TASK

In study 4, we tracked native-English-speaking participants' interest in negative feedback as they gained experience in learning to type in German. We operationalized expertise as level of training such that it increased as participants progressed on the learning task: they were novices on the first trial of the task and relative experts on the last trial. We predicted an increase in participants' likelihood of seeking negative feedback as they advanced on the task.

As in study 3, we divided study 4 into two parts. The first part tested for feedback seeking. The second part tested how the meaning of feedback changes as a function of position in the task. We predicted that novices would be more likely than experts to infer from positive feedback that their learning goal was important or valuable (i.e., commitment), whereas experts would be more likely than novices to infer from negative feedback that they should increase their efforts (i.e., progress).

Study 4a: Meaning of Feedback over Time

Method. Twenty-six undergraduate students participated for monetary compensation. This study utilized a 6 (expertise: trial number one—trial number six) within-subjects design. We recruited participants who had no prior experience speaking or writing in German to complete a study on how people learn an unfamiliar task: typing in German. Because participants were college students, adopting a goal of learning a new cognitive skill was relatively easy for them.

Participants read that the study assessed people’s ability to learn a new skill that required cognitive flexibility and that they would be “typing texts taken from popular German authors like Rilke and Goethe as well as songs from famous artists like the Beatles written in German.” Participants read that they would see text appear on the top portion of the computer screen and that their task was to duplicate the text in the space provided in the bottom portion of the screen—which was left blank with a blinking cursor—in the time allotted to complete the passage.

Next, participants learned their performance on the task would be measured by how quickly they typed the passage, and the accuracy of their typing as measured by the match between what they typed and the words in the passage. They further read that as with many learning tasks, they would have a chance to choose what individually-tailored feedback they would like to receive about their performance at different points in the study, specifically, before moving to the next trial.

We piloted the task to be fun yet moderately challenging. For example, participants typed the song “I Want to Hold Your Hand” from the Beatles or a passage from *The Sorrows of Young*

Werther by Johann Wolfgang von Goethe. They completed six trials in total. We randomized the order of the trials across participants to ensure a specific passage did not drive a participant's propensity of seeking positive versus negative feedback. Participants had 30 seconds to complete each typing task. Once the time had passed, the program automatically moved to the next screen.

After each trial, participants read, "Now that you have finished the (number, e.g., "first") trial, what feedback would you like to receive on your performance? You can only pick one piece of information so please choose what you would most like to know." Participants chose between receiving positive feedback about what they had done well or negative feedback about how they could improve. The item of interest was the type of feedback, positive or negative, participants chose as they progressed through the trials and became more experienced with the task.

Unbeknownst to participants, the content of the negative or positive feedback they received on each trial was predetermined and appeared equally informative. For example, participants who chose to receive positive feedback on trial one read, "After analyzing your response, it appears that you have good finger placement and that you do a good job ignoring how you think words should be spelled. This good finger placement helps your speed and accuracy." In comparison, participants who received negative feedback read, "After analyzing your response, it appears that you focus too much on how you think words should be spelled and that your accuracy is hindered when you add extra letters to words. You can improve your accuracy by watching your finger placement."

Results and Discussion. We coded a participant's choice of feedback as a binary variable (1 = chose negative feedback, 0 = chose positive feedback). In accordance with the hypothesis, a

binary logistic regression on choice of feedback revealed a linear trend indicating participants were more likely to seek negative feedback as they progressed through the trials ($\beta = .21$; Wald $\chi^2(1) = 21.62, p < .01$; see figure 4). Specifically, whereas only 50% of participants sought negative feedback after their first trial, 74% sought negative feedback after their second trial, 63% sought negative feedback after their third trial, 67% sought negative feedback after their fourth trial, 71% sought negative feedback after their fifth trial, and 82% sought negative feedback after the last trial.

These results are consistent with the hypothesis that as people gain expertise, they switch from seeking positive feedback to seeking negative feedback. Confirming that experts seek more negative and less positive feedback, we next tested for the meaning contained in feedback.

Study 4b: Meaning of Feedback

We conducted study 4b to test whether the same feedback on one's performance conveys different information for novices and experts, thus serving different motivational functions. We predicted novices focus on assessing their commitment and positive feedback motivates them because it signals high commitment, but experts focus on monitoring their progress, and negative feedback motivates them because it signals insufficient progress toward their goal.

Method. Two hundred thirty-two participants (116 women) completed a typing task similar to the one in the main study with a few minor adjustments. The study employed a 2 (expertise: novice vs. expert) \times 2 (feedback: positive vs. negative) \times 2 (meaning: commitment vs. progress) between-subjects design.

To ensure participants had enough experience in the task, they completed 15 typing trials. The rest of the task, including the feedback content, was similar to study 4a, except participants did not seek feedback. We randomly assigned participants to receive either positive or negative feedback after they completed the first trial, at which point they felt like relative novices, or before their last trial, at which point they felt like relative experts.

After receiving their feedback, participants rated either their feelings of making progress toward the goal (1 = *I feel like I have made sufficient progress on the task*, 7 = *I feel like I have made insufficient progress on the task*; progress inference) or how much they cared about doing well on the task (1 = *I care about my typing skills on this task very little*, 7 = *I care about my typing skills on this task very much*; commitment inference). We followed previous research (Fishbach and Dhar 2005) in wording these items. Our progress question captures a sense of making insufficient progress, whereas our commitment question captures the value (i.e., caring) component of commitment (see Value \times Expectancy model, Fishbein and Ajzen 1974). In the context of this task, both a sense of insufficient progress and a sense of caring about performing well reflect greater motivation to pursue the task at hand but for different reasons. After providing their answer, participants completed another trial (trial 2 for novices, trial 15, the last trial, for experts). Finally, participants were debriefed and dismissed. In their debriefings, none of the participants expressed suspicion that the feedback was not individually tailored.

Results and Discussion. The ANOVA on ratings of meaning in feedback yielded the predicted expertise (novice vs. expert) \times feedback (positive vs. negative) \times meaning (asked about commitment vs. progress) three-way interaction ($F(1, 225) = 3.98, p < .05$) and no main effects (see figure 5). Specifically, novices were more likely than experts to indicate positive feedback

signaled they care about their typing skills (i.e., commitment, $M = 4.67$, $SD = 1.06$, versus $M = 3.68$, $SD = 1.95$; $t(56) = 2.42$, $p < .02$). On the other hand, novices were not more likely than experts to infer they were committed when they received negative feedback ($M = 4.50$, $SD = 1.53$, versus $M = 4.53$, $SD = 1.61$; $t(58) < 1$, *ns*). Additionally, experts were more likely than novices to indicate they made insufficient progress when they received negative feedback ($M = 4.93$, $SD = 1.16$, versus $M = 3.96$, $SD = 1.58$; $t(55) = 2.64$, $p < .02$). However, experts were not more likely than novices to infer they had made insufficient progress when they received positive feedback ($M = 4.55$, $SD = 1.67$, versus $M = 4.15$, $SD = 1.41$; $t(56) < 1$, *ns*).

We predicted that giving novices (those at their first trial) positive feedback would increase their performance motivation more than giving them negative feedback. In addition, giving experts (those at their 14th trial) negative feedback would increase their performance motivation more than giving them positive feedback. Since we held time constant at 30 seconds per trial, we coded the number of words each participant accurately typed on the trial that followed the feedback (two vs. 15), as our measure of performance motivation.

Analysis of the number of words participants typed on trial two revealed that novices exhibited better performance when they received positive feedback ($M = 19.05$ words, $SD = 3.72$) than when they received negative feedback ($M = 17.32$ words, $SD = 4.04$; $t(111) = 2.38$, $p < .02$). Additionally, on trial 15, experts performed better when they received negative feedback on the previous trial ($M = 16.16$, $SD = 4.53$) compared with experts who received positive feedback on the previous trial ($M = 14.47$, $SD = 4.05$; $t(114) = 2.12$, $p < .04$). We did not observe better performance among experts versus novices, possibly due to a general depletion of resources as participants progressed. Indeed, we find that they typed more words on trial two than 15.

Nonetheless, the comparison between positive and negative feedback implies positive feedback increases motivation initially and negative feedback increases motivation subsequently.

The findings from study 4 further support our hypothesis regarding the link between expertise and seeking negative feedback (study 4a) and between expertise and responding to the negative feedback (study 4b), this time by following these trends as people gain expertise on a task. Moreover, in study 4b, we find that the same positive and negative feedback mean different things for those who start a task versus those about to finish it. Novices infer commitment more than experts, whereas experts infer a need for progress more than novices. Interestingly, because expertise is subjective and also relative, to the extent that people perceive themselves approaching the end of a task, they feel as if they are experts and hence seek negative feedback on the task after only engaging in it for a few trials. We can contrast these findings with those of study 1, where novices have been studying French for a longer time than this study's "experts," and conclude that expertise as a frame of mind, more than actual knowledge and set of skills, influences the shift to negative feedback.

Taken together, in our studies thus far, participants sought and responded to feedback on their own actions. A related question is whether people respond in a similar way to feedback on shared goals—that is, goals a group of individuals pursues together. Accordingly, in our last study, we asked how people respond to feedback on the effectiveness of their community's recycling program. By examining shared goals, we not only extended our investigation to feedback that is not self-threatening and is less likely to invoke defensive processes (e.g., negative feedback on the community recycling program is less offensive than negative feedback on one's own attempts) but we could further test for feedback that is presented as part of a

persuasive appeal. We predicted that experts would be more responsive than novices to persuasive appeals that emphasize negative aspects of the present situation.

STUDY 5: FEEDBACK ON SHARED GOALS: RECYCLING PROGRAMS

Individuals often pursue goals together. For instance, when people recycle, they understand that other community members must also recycle if they are to make a significant dent in helping the environment. We refer to these types of goals as shared goals and capitalized on this unique property of shared goals to provide participants with feedback on environmental actions that their city, rather a single person, performs.

In this study, we defined expertise as knowledge about environmental issues and manipulated participants' perceived expertise by asking them easy versus difficult knowledge questions. Participants then read a media message emphasizing that their city's recycling program was highly effective (positive feedback) or highly ineffective (negative feedback), and then indicated their attitudes toward the messages. We predicted that those who perceived they were knowledgeable about environmental issues (experts) would exhibit more favorable attitudes toward the negative message than those who perceived they were less knowledgeable (novices). In addition, we predicted that those who perceived they were novices would exhibit more favorable attitudes toward the positive media message than experts.

Method

Fifty-two people (19 women) at a downtown laboratory in a Midwestern city participated in the study for monetary compensation. This study employed a 2 (expertise: novice vs. expert) \times 2 (feedback: positive vs. negative) between-subjects design.

Participants completed a study on political issues, which presumably assessed the importance people place on learning about (a) the economy and (b) the environment. Their first task was to answer a series of questions on these topics. All participants indicated their familiarity with 10 events, five on the economy and five on the environment. Those assigned to the novice condition were made to feel relatively less knowledgeable about environmental issues and relatively more knowledgeable about economic issues. In this regard, we influenced perceived expertise by asking novices if they were familiar with five environmental issues that were not highly publicized: the 2009 Istanbul floods, the 2008 Chinese winter storms, the 2009 fires in Australia, the 2009 typhoon in China, and the 2009 cyclone in Myanmar. On the other hand, novices were asked about five economic issues they had likely heard of: rising national debt in the United States, increasing unemployment in the United States, government bailouts in the United States, the costs of health care reform, and the 2009 economic summit in PA.

In contrast, those assigned to the expert condition were made to feel relatively more knowledgeable about environmental issues and less knowledgeable about economic issues. Experts indicated their familiarity with five well-known environmental issues: Hurricane Katrina, the Kyoto Protocol, the 2004 tsunami in Thailand, the 2009 California wildfires, and melting arctic icecaps. They also indicated their familiarity with three economic issues that were not as well publicized—the 2009 economic crisis in Mexico, the 2009 economic boom in Qatar, and China's decreased lending—and two economic issues that were more publicized (from the previous condition)—the costs of health care reform and the 2009 economic summit in PA. We

included the latter two economic issues that participants had more likely heard of in the environmental-expert condition based on our pre-testing, in which participants were generally less familiar with economic issues. We wanted to ensure participants could recognize a similar number of events across the expertise conditions and thus feel equally competent. In this way, we manipulated perceived knowledge of environmental issues without negatively impacting participants' views of themselves as knowledgeable people.

Next, the experimenter moved participants to a new room to complete a presumably unrelated study. Participants read that the researchers were interested in how people think about newsletters written by journalism students from a local college. Participants assigned to read positive feedback read a newsletter entitled "City Recycling Program Is an Environmental Panacea" that emphasized that another agent, their city, utilizes a highly effective recycling program. Specifically, participants read that their city's recycling program costs less to operate than waste collection does and was thus highly cost-effective. Further, they read that in addition to reducing waste, the city saved money by getting rid of duplicate pick-up routes, due to its history of being a city that recycles. In contrast, those assigned to read negative feedback were given an article entitled "City Recycling Dumped in Landfills" that emphasized that another agent, their city, has a highly ineffective recycling program. Specifically, participants read that their city paid exorbitant costs to get rid of recyclables or simply had city employees dump recyclables in public landfills. Further, they read that those at City Hall claimed determining what plastics are easily versus not easily recycled is too complex and that the public needs to express how much it values recycling to stop the city's bad actions.

Upon completion of the article, participants rated it on a several dimensions. The variables of interest pertained to participants' attitudes toward the article. They rated how

persuasive the article was and how useful, convincing, and diagnostic the information in it was (for all four items, 1 = *not at all persuasive/useful/convincing/diagnostic*, 7 = *very persuasive/useful/convincing/diagnostic*).

Results and Discussion

We counted the number of economic and environmental issues with which the participants were familiar. In support of the manipulation, participants who were made to feel like novices had heard of fewer environmental issues; thus they were less familiar with them ($M = 1.89$, $SD = 1.20$) than were those who were made to feel like experts ($M = 4.07$, $SD = .79$; $t(50) = 8.47$, $p < .001$). In further support of the manipulation, those who were made to feel like experts on environmental issues reported knowing fewer economic issues ($M = 2.73$, $SD = 1.11$) than those who were made to feel like novices on environmental issues and experts on economic issues ($M = 4.11$, $SD = .47$; $t(50) = 6.69$, $p < .001$). Thus the manipulation did not influence overall competence across both sets of items, as participants indicated they had heard of roughly the same amount of issues, yet, as intended, half of the participants were made to feel they were relatively knowledgeable about the environment.

To further ensure our expertise manipulation did not influence mood, we sampled participants from the same subject population ($N = 40$) to complete the expertise manipulation and then rate their mood on the positive and negative PANAS scales (Watson, Clark and Tellegen 1988). Those made to feel like novices on environmental issues (and experts on economic issues) and those made to feel like experts on environmental issues (and novices on economic issues) reported similar levels of positive mood ($M_{Novices} = 1.72$, $SD = .69$ vs. $M_{Experts} =$

1.75, $SD = .54$, $t(38) < 1$, *ns.*) and similar levels of negative mood ($M_{Novices} = 1.73$, $SD = .69$ vs. $M_{Experts} = 1.75$, $SD = .54$, $t(38) < 1$, *ns.*).

To test the main hypothesis, we assessed participants' attitudes toward the messages by collapsing the four questions that measured evaluation ($\alpha = .82$). An ANOVA of attitudes ratings revealed the predicted expertise \times feedback interaction ($F(1,48) = 19.49$, $p < .001$) and no main effects. Contrast analysis revealed that among those who read the media message emphasizing the positive aspects of their city's recycling program, those who perceived themselves as novices exhibited more favorable attitudes toward the message ($M = 5.50$, $SD = .91$) than those who perceived themselves as experts ($M = 3.80$, $SD = 1.32$; $t(19) = 3.47$, $p < .01$). In contrast, among those who read the media message emphasizing the negative aspects of their city's recycling program, those who perceived themselves as experts exhibited more favorable attitudes toward the message ($M = 5.56$, $SD = .83$) than novices ($M = 4.68$, $SD = 1.02$; $t(29) = 2.50$, $p < .02$, see figure 6).

In study 5, we find support for our proposition that expertise impacts the response to feedback, even if the feedback is targeted toward group members pursuing a shared goal rather than toward an individual. We demonstrate that novices exhibit more favorable attitudes than experts toward a media message emphasizing positive feedback, whereas experts exhibit more favorable attitudes than novices toward a media message emphasizing negative feedback.

GENERAL DISCUSSION

This article investigates the feedback individuals seek as well as how they respond to that feedback by changing their attitudes and behaviors. We predict an increase in negative feedback

as people gain expertise, because the meaning people derive from feedback changes such that negative feedback increases the motivation to adhere to a goal. In support of our prediction, we find that novices infer from feedback whether their goals are valuable (commitment), whereas experts infer from feedback whether their pace of pursuing already-valuable goals is sufficient (progress). As a consequence of the information in feedback, novices are more likely than experts to seek positive feedback on their strengths and alter their behaviors and attitudes when they get such feedback, whereas experts are more likely than novices to seek negative feedback on their weaknesses and alter their behaviors and attitudes when they get this feedback.

Results from five studies support these hypotheses. In studies 1 and 2, we measured expertise and showed it was associated with seeking more negative feedback on one's performance in a language class (study 1) and recycling habits (study 2). In study 2, we further demonstrated that novices respond more than experts to positive feedback by donating to an environmental charity, whereas expert environmentalists respond more than novices to negative feedback by increasing their donations. In study 3, we manipulated expertise: women who felt like nail-care experts sought more negative feedback on their nail-care habits and responded more to this feedback by expressing a higher willingness to pay for manicures than women who felt like novices. In comparison, women who perceived themselves as novices responded more to positive feedback. In study 4, we examined how people seek an increasing amount of negative feedback as they progress on a learning task and demonstrated that, indeed, novices seek and respond more to positive feedback because it affirms their commitment to a goal, whereas experts seek and respond more to negative feedback because it signals they have made insufficient progress and have not invested enough effort toward their goals. Finally, in study 5, we demonstrated that expertise influences people's responses (in particular, their attitudes) to

persuasive appeals that emphasize successful versus unsuccessful pursuit of a shared environmental goal. Thus negative messages on the city's ineffective recycling actions were more persuasive for experts than novices, whereas positive messages on the city's effective actions were more persuasive for novices than experts.

Interestingly, across these studies, we find that people are generally interested in negative feedback (e.g., in study 3, 100% of those made to feel like experts in caring for their nails and 74% of those made to feel like novices sought negative feedback). Thus, whereas some previous research portrays people as negative-feedback avoiders (Russo, Meloy, and Medvec 1998; Tormala and Petty 2004), we identify conditions under which they seek and endorse negative feedback. In particular, negative feedback seems to serve an important function when it is constructive (rather than detrimental) and when people desire to acquire new habits or improve existing ones (rather than enhance their self-image).

Motives Underlying Feedback Seeking

The present research addresses situations in which people look for feedback to motivate themselves to pursue their goals and, under these circumstances, we find that experts seek more negative feedback than novices. Although motivating oneself is a common and possibly the dominant motive in feedback seeking, at times people might hold other motivations for feedback seeking. For instance, people might want to receive self-enhancing feedback (Tesser 1988), in which case they will prefer positive feedback regardless of their expertise. For example, we would predict that both experts and novices will seek positive feedback when in a negative mood as a means for mood improvement. Other times, people might seek confirming feedback, which reaffirms their self-view (Swann and Read 1981). If self-affirmation underlies feedback seeking,

we could expect experts to seek more positive feedback than novices on their ability to pursue their goal, but experts might seek more negative feedback than novices on goal attainment, because such feedback will affirm the novices' greater optimism about goal attainment. Moreover, people might also look for feedback to justify goal disengagement, that is, as an excuse to get out of pursuing a certain goal. In these situations, we would expect experts to seek positive feedback (signaling they have put in enough effort) and novices to seek negative feedback (signaling the action is not worth doing), because this feedback would undermine task motivation.

Thinking about this latter motivation to get out of pursuing a goal further helps us illuminate the distinction between expertise and commitment. We propose that expertise increases commitment but that expertise is not commitment. Whereas expertise, by definition, increases with experience, goal commitment often increases but can at times decrease or remain stable. And whereas committed people, by definition, desire to continue pursuing a goal, experts might at times look for reasons to disengage from goal pursuit. For example, an expert French speaker might look for reasons to slack off in a required French language class and thus look for positive feedback suggesting she has sufficiently progressed in learning the materials, whereas a highly committed French major will look for ways to improve her French and thus look for negative feedback suggesting she can improve.

The Subjective Nature of Expertise

Our findings suggest researchers should think of expertise as a subjective experience that fluctuates depending on the context and salient social comparison standards. For example,

women in study 3 felt less experienced with their nail-care habits when they compared themselves to someone doing her nails on a weekly basis than when they compared themselves to someone doing her nails once every two years. Whereas previous research identified the various dimensions of consumer expertise, including the frequency of performing actions (Bettman and Park 1980) and prior knowledge (Hong and Sternthal 2010), we find the impact of each of these variables depends on the subjective experience of the consumer. Whether a person feels she performs actions more than another person or feels she is more knowledgeable than a salient comparison standard will determine her perception of herself as an expert and will further influence how she responds to feedback.

Naturally, other dimensions of consumer expertise exist beyond what we explored in this research. For example, one such dimension of expertise might be power. Receiving feedback from a person in a position of higher power might make one question his own commitment and feel like a relative novice. For example, patients who receive advice from their doctors, who are perceived as higher in power, might be reminded that they have a lot to learn about diet and exercise and thus, compared to their doctors, will feel like novices on health-related issues. In this instance, we would predict the novice (patient) will be more likely to focus on assessing her commitment and thus will seek and respond more to positive feedback than will a person who has more power (the doctor). We would further predict that as with other dimensions of expertise, the subjective experience of power (or powerlessness) influences the experience of expertise and thus the feedback an individual seeks.

Although power may indeed influence one's sense of expertise, this variable cannot explain the patterns we observed in our studies, because the power of the feedback giver was held constant in each study. For example, regardless of participants' expertise in study 1, they

always sought feedback from an instructor who has more power than they do, or as participants progressed through the task in study 4, they constantly sought feedback from the computer, which is not an entity with whom they have power relationships.

One important implication of our finding that expertise is subjective is that marketers can make the recipients of persuasive experts feel relatively experienced or inexperienced and then tune their feedback to the induced subjective expertise. Moreover, inducing a sense of expertise among message recipients could be particularly useful when marketers cannot frame a message positively, as when a person's performance is particularly bad and negative feedback would hurt her self-esteem—for example, when targeting individuals who overeat or fail to save.

Marketing and Policy Implications

The present findings have further implications for marketers and members of the media attempting to persuade people to see their points of view. Our findings attest that media messages emphasizing positive feedback have greater impact on novices than experts, whereas media messages emphasizing negative feedback have greater impact on experts. Thus the present findings add to the already large body of research exploring when positive versus negative feedback is more effective (see, e.g., Ahluwalia, Burnkrant, and Unnava 2000; Maheswaran and Myers-Levy 1990) by suggesting that when consumers focus on realistically assessing their skills, negative feedback can, in fact, alter attitudes and behaviors. Conceivably, then, companies that desire to have consumers engage more with their product might want to target new users of their products by telling them how well they already utilize their sophisticated products and

target experienced users by telling them how they can improve their usage of such sophisticated products.

Additionally, the current findings have specific implications for marketers of learning and skill-acquisition products. For instance, our findings suggest marketers should design their feedback with a consumer's expertise level in mind. To illustrate, health clubs should instruct their trainers to give positive feedback about the things new clients do well (e.g., that they have good form on a particular exercise) and focus on negative feedback about the areas clients can improve (e.g., they can improve their form on a particular exercise) when interacting with experienced clients. Similarly, weight-loss programs should emphasize that new attendees have done a nice job monitoring their diet over the course of the week and that this monitoring will help them lose weight, but the programs should emphasize that frequent attendees can monitor their diets a bit more closely if they would like to lose weight.

Finally, these findings have implications for how marketers, as well as educators and social agents, can help encourage people to adhere to the goals they set for themselves. In general, marketers can be more effective in the feedback they provide by accounting for a person's level of expertise in pursuing performance goals. For instance, companies that offer products designed to aid in skill acquisition should account for their customers' sense of expertise and, accordingly, provide feedback that increases their motivation. One caveat to this recommendation is that consumers should focus on improving and learning while they acquire new skills rather than on seeking self-enhancing feedback; otherwise, negative feedback could be detrimental to their performance.

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TABLE 1: OPERATIONAL DEFINITIONS OF EXPERTISE BY STUDY

Dimension of expertise	Study
Formal Training	Study 1: Enrollment in beginner (novices) versus advanced (experts) French class
	Study 4: Training in typing in an unfamiliar language
Frequency of Performing Goal-Related Actions	Study 2: Affiliation with environmentalist groups (experts) versus not (novices)
	Study 3: Perceived frequency of using nail-care services (high: experts; low: novices)
Knowledge	Study 5: Perceived knowledge of environmental issues (high: experts; low: novices)

FIGURE 1: INTEREST IN FEEDBACK FROM AN INSTRUCTOR WHO EMPHASIZES
POSITIVE VERSUS NEGATIVE FEEDBACK AS A FUNCTION OF EXPERTISE LEVEL
(STUDY 1)

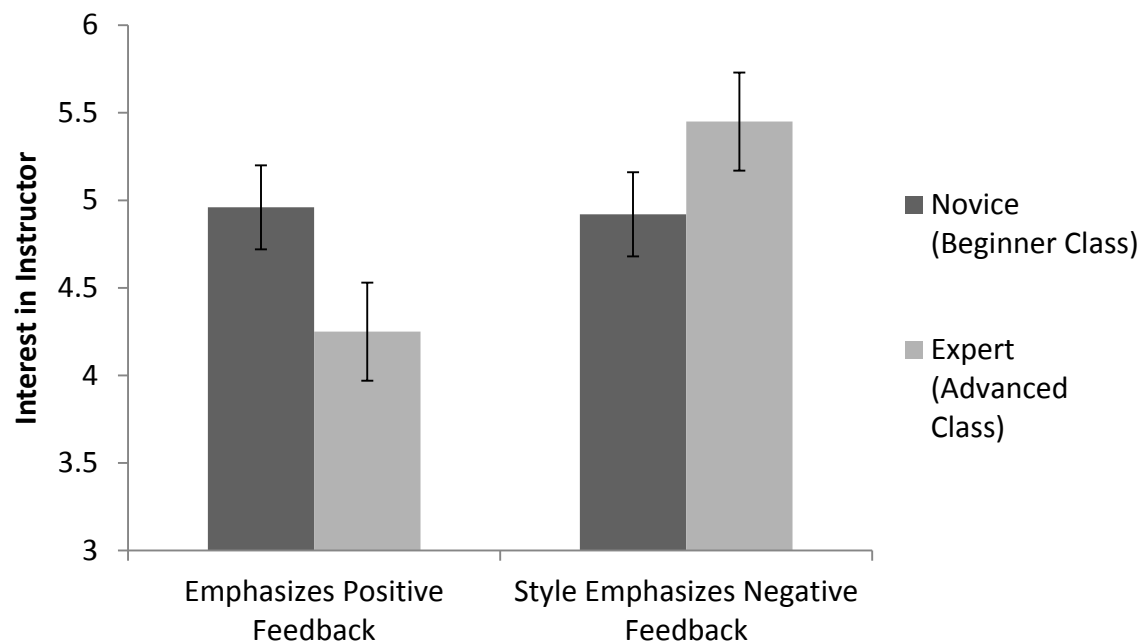


FIGURE 2: DONATION AMOUNTS TO GREENPEACE AS A FUNCTION OF EXPERTISE LEVEL AND FEEDBACK RECEIVED (STUDY 2)

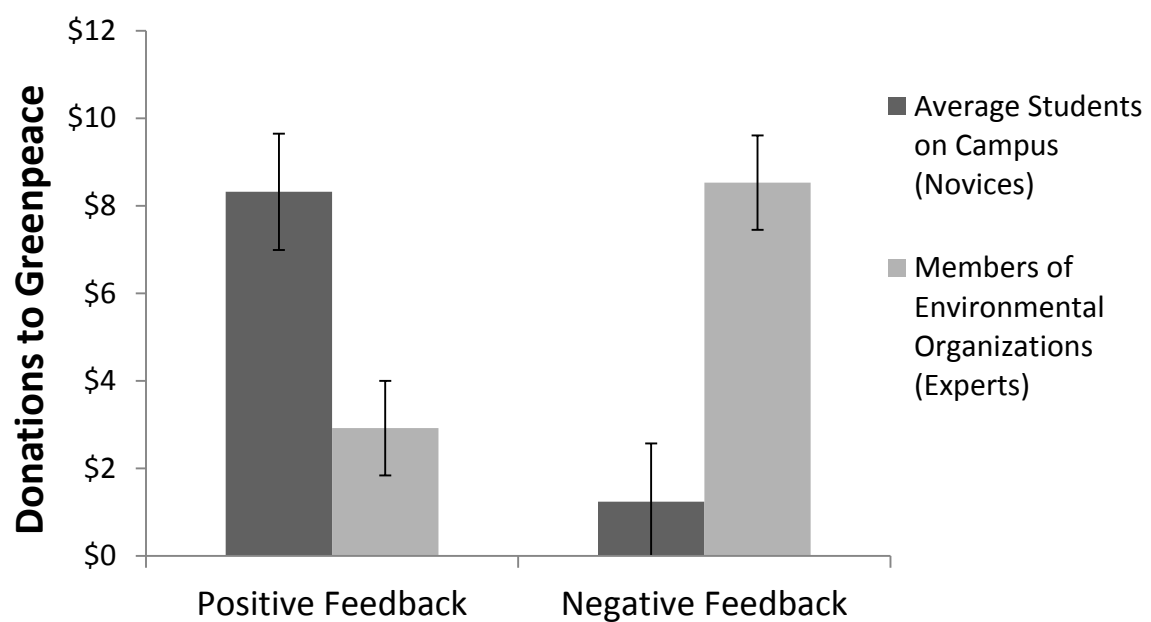


FIGURE 3: WILLINGNESS TO PAY FOR A MANICURE AS A FUNCTION OF EXPERTISE LEVEL AND FEEDBACK RECEIVED (STUDY 3)

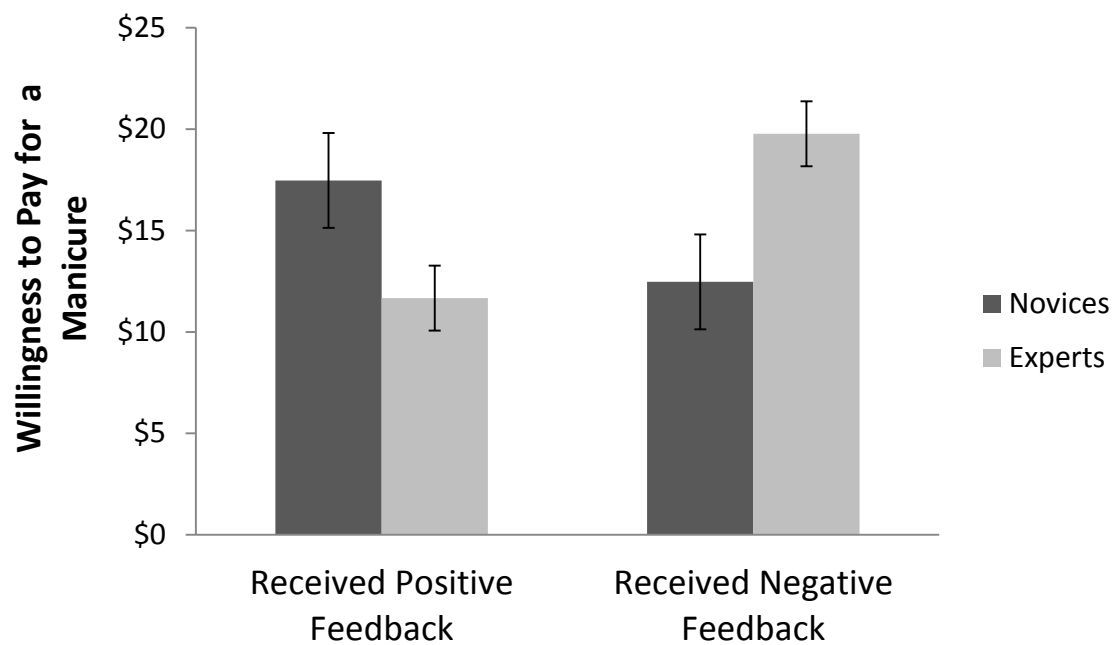


FIGURE 4: PERCENTAGE OF PARTICIPANTS WHO SOUGHT NEGATIVE FEEDBACK
AS A FUNCTION OF EXPERTISE LEVEL (STUDY 4)

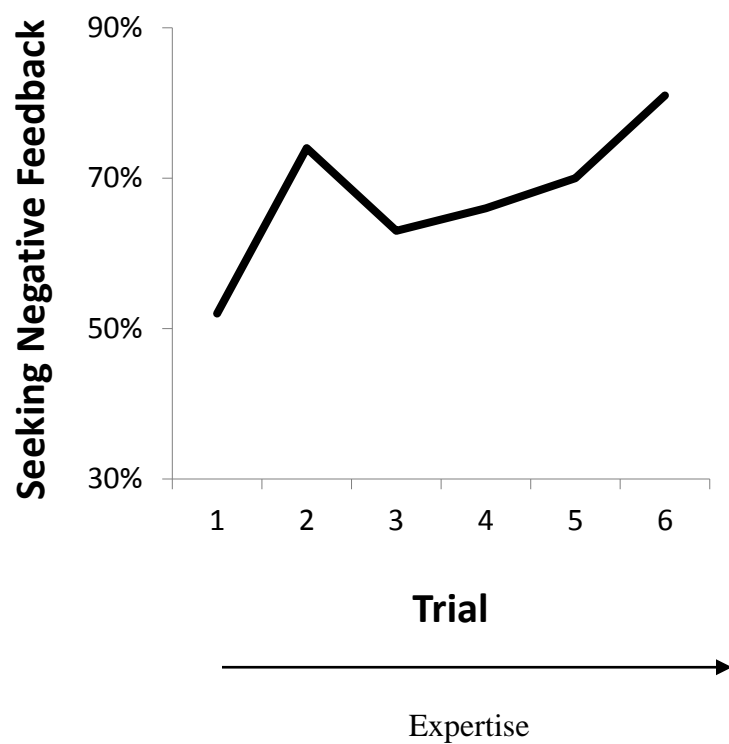


FIGURE 5: INFERENCES ABOUT PROGRESS ON AND COMMITMENT TO LEARNING
TO TYPE IN GERMAN AS A FUNCTION OF FEEDBACK AND EXPERTISE LEVEL

(STUDY 4)

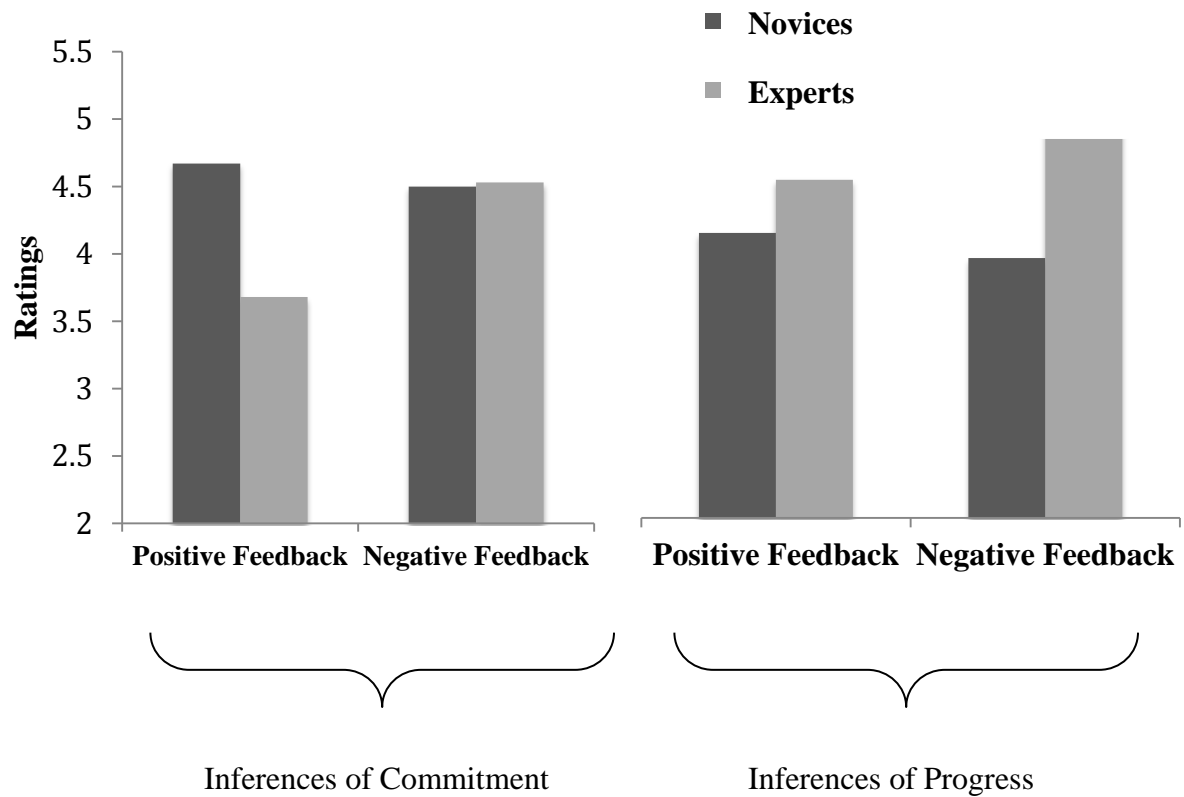


FIGURE 6: ATTITUDES TOWARD POSITIVE AND NEGATIVE MESSAGE AS A
FUNCTION OF EXPERTISE (STUDY 5)

