

It Just Feels Good: Customers' Affective Response to Touch and Its Influence on Persuasion

Prior research has assumed that touch has a persuasive effect only if it provides attribute or structural information about a product. Under this view, the role of touch as a persuasive tool is limited. The main purpose of this research is to investigate the persuasive influence of touch as an affective tool in the *absence* of useful product-related information. The authors find that for people who are motivated to touch because it is fun or interesting, a communication that incorporates touch leads to increased affective response and increased persuasion, particularly when the touch provides neutral or positive sensory feedback. People who are not motivated to touch for fun will also be persuaded by a communication that incorporates touch when they are able to make sense of how the touch is related to the message. The authors explore the effectiveness of different types of touch in generating an affective response, and they replicate the effects on attitudes and behavior in a real-world setting. This research suggests that the marketing implications of touch are more substantial than previously believed. The authors present research implications for direct marketing, product packaging, point-of-purchase displays, and print advertising.

The opportunity to touch products has been shown to have a persuasive influence on customers' attitudes and behavior. Touching a product has been found to increase attitudes and purchase intentions toward the product and to increase the confidence in the evaluation of these products (Peck and Childers 2003a). The need to touch in product evaluation has been linked to the placement of products in stores (Underhill 1999) and to the inability of certain products to be sold online (Citrin et al. 2003; McCabe and Nowlis 2003).

Most applications in marketing focus on touch that provides specific attribute information about the product. For example, the packages of both Paper Mate Dynagrip pens and Ove Glove have portions of the plastic cut out, allowing shoppers to explore and examine the grip of the pen and the unique fabric that makes the gloves heatproof. DuPont created a one-page advertisement for paper used to make overnight courier envelopes that stated, "Go Ahead: Tear this Page in Half" (this appeared in *Fortune Magazine*,

December 29, 1997). Attempting the near impossible task of tearing the page conveys the product benefit of the strength of the paper. Such efforts have been shown to have an effect on purchase behavior; for example, providing unwrapped rolls of toilet paper in a point-of-purchase display that allowed customers to feel and compare the textures of different brands resulted in large increases in sales for the store brand in a supermarket chain (Britain's ASDA; see Lindstrom 2005).

For touch to have an influence in marketing decisions and evaluations, must it provide product attribute information, or can hedonic aspects of touch also be persuasive? The importance of hedonic benefits to consumers in marketing has been recognized in the areas of sales promotions (e.g., Chandon, Wansink, and Laurent 2000) and retailing (e.g., Arnold and Reynolds 2003). In this article, we examine whether the hedonic benefits of touch influence decisions independent of the information gathered through touch. We suggest that touch can create an affective response, which can influence a customer's decision-making process even though the touch adds no product-related information to the decision.

If the hedonic aspects of touch can increase persuasion, the use of touch in marketing may be more broadly applicable than previously believed. Thus far, efforts have been limited to touch that provides attribute information about a product; it is often the case that this kind of touch can be used effectively only in contexts in which customers can physically evaluate the product. However, the use of touch as a hedonic tool has the potential to be applied to a broad set of products and even services and in a wide variety of contexts that were previously unrecognized in studies of touch, including package design, print advertising, direct-mail advertising, and point-of-purchase displays.

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Background and Hypotheses

Instrumental and Autotelic Need for Touch

Peck and Childers (2003b) find that the effects of touch are stronger for some people than for others. They identify individual differences in need for touch (NFT), that is, a person's preference for the extraction and utilization of information obtained through touch. Prior research (see Citrin et al. 2003; Peck and Childers 2003a) has found that some people prefer to evaluate products through touch and are more frustrated when shopping if they do not have the opportunity to touch products. The NFT is conceptualized as having two dimensions: instrumental NFT and autotelic NFT (Peck and Childers 2003b). People who are high in instrumental NFT use touch to gather information about a product to help them make judgments. They are more adept at gathering information through touch, and the opportunity to touch products provides them with access to relevant information they cannot gather through other means, such as reading descriptions of products or visually inspecting products (Peck and Childers 2003a). A customer who is high in instrumental NFT touches a sweater to learn if the material is thick enough to provide warmth. In addition to customers' "rational" information-gathering motives, some people shop for the sensory experiences (Holbrook and Hirschman 1982; Sherry 1990). In contrast, people who are high in autotelic NFT engage in touch because it is fun, interesting, or enjoyable, an experience that is more hedonic than instrumental. A person who is high in autotelic NFT often feels an irresistible need to engage in exploratory touch and is focused on the sensory aspects of touch as an end in and of itself (Peck and Childers 2003b). The customer who fingers the sleeve of a cashmere sweater that he or she has no intention of purchasing, simply because the cashmere feels pleasant to touch, is likely to be high in autotelic NFT.

If touch that does not convey a product attribute can affect persuasion, we expect that this type of touch will be more effective for certain people. Specifically, we posit that a message that incorporates a touch element without product attribute information will be more persuasive for people who are high in autotelic NFT than a message with no touch element. However, we expect that people who are low in autotelic NFT will not find touch as inherently interesting or as irresistible. Consequently, we expect that a touch element that does not provide attribute information will not influence people who are low in autotelic NFT. This leads to our baseline hypothesis:

H₁: A message that incorporates a touch element (versus a message with no touch element) will increase persuasion for people who are high in autotelic NFT but will not influence persuasion for those who are low in autotelic NFT.¹

¹Note that persuasion includes measures of attitude toward the message and attitude toward the organization as well as behavioral measures. For simplicity, we use the term "persuasion."

Autotelic NFT and the Sensory Feedback of the Touch Information

It is probable that the type and valence of sensory feedback provided by the touch element influence its persuasiveness. Touch that produces positive sensory feedback has been shown to increase attitudes more for high-NFT people than for low-NFT people. In one study, high-NFT people exhibited a larger increase in attitudes when they touched a soft sweater that was pleasant to touch than when they touched a rough sweater that was less pleasant to touch (Peck 1999). The pleasant sensory experience of touching the soft sweater appears to have increased persuasion more for the high- than for the low-NFT participants. The affective nature of autotelic NFT suggests that people who are high in autotelic NFT are likely to have a stronger affective response to touch than those who are low in autotelic NFT. This implies that people who are high in autotelic NFT, in particular, are likely to be more susceptible to the increase in persuasion that comes from a pleasant touch experience.

Positive affective responses have been shown to influence attitudes and behavior. In advertising research, inducing a positive mood in viewers or generating a positive affective response has been found to increase attitude toward the ad (see Aaker, Stayman, and Hagerty 1986; Batra and Ray 1986; Brown, Homer, and Inman 1998; Burke and Edell 1989), time spent viewing the ad (Olney, Holbrook, and Batra 1991), and attitude toward the brand (Brown, Homer, and Inman 1998; Burke and Edell 1989; Holbrook and Batra 1987). Positive affective responses have also been shown to influence behavior directly. For example, experiencing pleasure (Cunningham 1979; Forbes and TeVault 1975; Isen and Levin 1972; Strahilevitz and Myers 1998) has been shown to increase people's likelihood of donating to charity significantly. Positive feelings have also been shown to increase people's willingness to participate in an experiment and to help people in need (Isen 1987). Finally, positive affect has been linked to the hedonic and experiential aspects of consumer behavior, increasing variety-seeking behavior, experiential shopping, and hedonic consumption (Cohen and Areni 1991; Hirschman and Stern 1999; Kahn and Isen 1993). This suggests that engaging in touch that creates a positive affective response is likely to lead to more positive attitudes and greater behavioral intentions toward a product.

Therefore, we expect that people who are high in autotelic NFT will exhibit an increase in persuasion when they are exposed to marketing messages that incorporate a touch element with positive sensory feedback. In contrast, people who are low in autotelic NFT are more likely to process touch information that is included in a marketing message in the same way that they process any other information in the message and, therefore, will be unlikely to experience a persuasive effect of positive sensory feedback. Thus, touch should influence people who are low in autotelic NFT only if it provides information that helps them interpret the message. Exposure to a touch element that does not provide useful information is unlikely to increase the attitudes of such people. This leads to our next hypothesis:

H₂: Compared with a message with no touch element (control condition), a message that includes a touch element with positive sensory feedback will increase persuasion more for people who are high (but not low) in autotelic NFT than will a message that includes a touch element with neutral or negative sensory feedback.

Congruence Between the Touch Element and the Message

Consumers' responses to additional information that is incorporated into a marketing message, such as a picture or a touch element, have been shown to be influenced by the congruence between the additional information and the message.² Heckler and Childers (1992) define "congruence" as having two components: expectancy, or the degree to which the additional information falls into the pattern or structure of the message, and relevancy, or the degree to which the additional information contributes to or detracts from the theme of the message. Information that is unexpected, such as humor, has been shown to increase favorable evaluations and recall of an advertisement (Lee and Mason 1999). Conversely, irrelevant information has been shown to have a negative effect on both the evaluation and the recall of an advertisement (Heckler and Childers 1992; Lee and Mason 1999). This implies that incorporating a touch element into a communication in which it would be unexpected, such as a print advertisement or direct-mail brochure, may lead to a favorable evaluation of the message and increase attitude toward the message, depending on the relevancy of the touch element to the message.

Lee and Mason (1999) suggest that the difficulty with irrelevant information is that a person is unable to perceive the connection between the information and the message and, therefore, becomes frustrated. This implies that if people who are low in autotelic NFT are processing a touch element as part of the overall message, an irrelevant touch element will create confusion and frustration and thus detract from their attitude toward the message. However, if people who are high in autotelic NFT are simply responding affectively to the touch element and not processing it as part of the message, the negative effect of irrelevancy is likely to be attenuated. This leads to our third hypothesis:

H_{3a}: For people who are high in autotelic NFT, a message that includes a touch element will be more persuasive than a message that does not include a touch element, regardless of the congruency between the touch element and the message.

H_{3b}: For people who are low in autotelic NFT, a message that includes a touch element will be more persuasive than a message that does not include a touch element only if the touch element is congruent with the message.

²The term "congruence" has also been used to describe the relationship between a piece of information that is being processed and a person's information-processing style (see Higgins 2000). Our definition of congruence emphasizes the congruence between the touch information and the message into which it is incorporated and does not imply congruence with the person who is processing the message.

Study 1

The purpose of Study 1 was to test H₁–H₃ and to determine the effects of incorporating a touch element that does not provide product attribute information into a communications message on people who are both high and low in autotelic NFT. Study 1 was a 2 (touch element: present versus absent) × 2 (autotelic NFT: high versus low [determined by a median split]) design; the first factor was manipulated between subjects, and the second factor was measured between subjects. Nested within the touch-element condition were two levels of congruence between the touch element and the message (congruent and incongruent [determined by a pretest]) and three levels of sensory feedback (positive, neutral, and negative [determined by a pretest]); both were manipulated between subjects.

Variables and Procedure

Three hundred forty-five undergraduate students participated in exchange for extra credit in a marketing class. Each participant read a pamphlet with the same message that requested that the participant make a donation of time or money to an arboretum located in the Midwest (see Appendix A). We asked participants to list their thoughts as they read the pamphlet. In the touch-element conditions, a touch element was attached to the front of the pamphlet. We used six touch elements in all; we varied the sensory feedback or valence provided by the touch element and the congruence between the touch element and the message across conditions.

We evaluated congruence of the touch element with the message and sensory feedback through pretests. We presented each participant in the congruency pretest ($n = 56$) with three of the six sample touch elements (we counterbalanced the order and found no order effects) and the pamphlet with the arboretum appeal and asked them to rate the congruence of each sample touch element with the appeal. We measured congruence using two questions: "The 'fit' of this touch sample with the pamphlet is..." with endpoints "very bad/very good" and "very unfavorable/very favorable," each of which were seven-point scales. We averaged the two measures of congruence (all r 's $> .85$) to obtain one measure of congruence for each touch element. Participants rated three touch elements as highly congruent with the message of the pamphlet: a feather ($M = 5.18$), tree bark ($M = 5.52$), and sandpaper ($M = 4.14$), and none was significantly higher than the others on congruence ($ps > .05$). Participants rated three other touch elements as being low on congruence with the message: a soft silver swatch ($M = 2.42$), a slightly textured black-and-gold swatch ($M = 1.90$), and steel wool ($M = 2.62$), and none was significantly different from the others (all $ps > .05$). The three congruent touch elements were all significantly higher on congruency than the incongruent touch elements.

A second pretest evaluated the valence of the sensory feedback provided by touching each touch element. Thirty-six participants rated how pleasant each of the touch elements was to touch on a seven-point scale. For the congruent touch elements, participants rated the feather as extremely positive ($M = 5.68$), the tree bark as neutral ($M =$

4.01), and the sandpaper as negatively valenced ($M = 2.90$). Using paired valence t -tests, we obtained the following results: feather versus tree bark: $t(35) = 5.84, p < .01$; feather versus sandpaper: $t(35) = 8.45, p < .01$; and tree bark versus sandpaper: $t(35) = 2.42, p < .01$. Among the incongruent touch elements, participants rated the soft silver swatch as extremely positive ($M = 5.59$), the slightly textured black-and-gold swatch as neutral ($M = 4.04$), and the steel wool as negatively valenced ($M = 2.90$). Again, using paired valence t -tests, we obtained the following results: soft silver swatch versus black-and-gold swatch: $t(35) = 6.53, p < .01$; soft silver swatch versus steel wool: $t(35) = 10.60, p < .01$; and slightly textured black-and-gold swatch versus steel wool: $t(35) = 7.80, p < .01$.³ After reading the pamphlet, participants in Study 1 completed a questionnaire, which included measures of their attitudes toward the message and the arboretum and their willingness to donate time or money to the arboretum.⁴ We used familiarity with the arboretum and prior donation behavior in terms of time and money as covariates in the analyses; we found no significant effects on the results. Next, under the guise of a different study, participants completed the autotelic component of the NFT scale (6 items) from the 12-item NFT scale (Peck and Childers 2003a; for scale items, see Appendix B).⁵ The NFT scale measures dimensions of both instrumental NFT and autotelic NFT. As Peck and Childers (2003b) recommend, depending on the underlying theory, researchers might choose to employ just one dimension of the NFT scale. Finally, we thanked participants and debriefed them.

Results

We found support for H_1 , which predicted that a touch element would increase persuasion for people who are high in autotelic NFT but not for those who are low in autotelic NFT. We measured both attitude toward the pamphlet and

attitude toward the organization on three seven-point scales (“What is your overall feeling toward the pamphlet/organization?” anchored by “very unfavorable/very favorable,” “very bad/very good,” and “very negative/very positive”). We averaged these (all α s $> .90$) for a measure of attitude toward the pamphlet and attitude toward the organization. With attitude toward the pamphlet as the dependent variable, the interaction between whether a touch element was present (yes/no) and autotelic NFT was significant ($F(1, 339) = 5.25, p < .05, \omega^2 = .02$). There was no significant main effect for the touch/no touch element or for autotelic NFT ($ps > .05$). Using planned contrasts, we found that participants who were high in autotelic NFT had a more positive attitude toward the pamphlet when a touch element was present than when it was absent (M s = 5.32 and 4.83, respectively; $F(1, 339) = 4.93, p < .05, \omega^2 = .04$; see Table 1), whereas a touch element had no effect on participants who were low in autotelic NFT ($M = 5.13$ for touch and 5.40 for no touch; $F(1, 339) = 1.19, p > .05$). We obtained the same pattern of results for the likelihood of donating time or money to the organization (see Table 1); the interaction between touch/no touch and autotelic NFT was significant ($F(1, 339) = 6.16, p < .05, \omega^2 = .02$), but no main effects were significant ($ps > .05$). Participants who were low in autotelic NFT were unaffected by a touch element (M s = 3.34 for touch and 3.54 for no touch; $F(1, 339) = .37, p > .05$), and participants who were high in autotelic NFT were significantly more willing to donate time or money when a touch element was included in the appeal (M s = 3.65 and 2.75; $F(1, 339) = 9.25, p < .05, \omega^2 = .05$). The presence of the touch element did not affect attitude toward the organization; there were no significant main effects or interaction effects, implying that the persuasive influence of the touch element may be restricted to the specific message that incorporates the touch element and not extended to the organization that is sponsoring the message.

H_2 predicted that for people who are high (but not low) in autotelic NFT, a message that included a touch element with positive sensory feedback (versus a message with no touch element [control condition]) would increase persuasion more than a message that included a touch element with neutral or negative sensory feedback. We found partial support for this hypothesis. Using planned comparisons, for both attitude toward the pamphlet and likelihood of donating time or money, we found that participants who were high in autotelic NFT were most persuaded by touch information that provided positive sensory feedback compared with the no-touch-element control condition (attitude toward the pamphlet: M s = 5.49 and 4.83; $F(1, 329) = 6.32, p < .05, \omega^2 = .05$; likelihood of donating time or money: M s = 3.87 and 2.75; $F(1, 329) = 10.09, p < .05, \omega^2 = .04$; see Table 1). A touch element with neutral sensory feedback also significantly increased persuasion for participants who were high in autotelic NFT compared with the control condition (attitude toward the pamphlet: M s = 5.32 and 4.83; $F(1, 329) = 4.21, p < .05, \omega^2 = .04$; likelihood of donating time or money: M s = 3.79 and 2.75; $F(1, 329) = 9.38, p < .05, \omega^2 = .03$), whereas a touch element providing negative sensory feedback did not significantly influence persuasion for participants who were high in autotelic NFT (all $ps >$

³We conducted one final pretest to ensure that vision did not influence the touch valence ratings. Sixteen participants evaluated the valence of the six touch elements without vision. We put each touch element in an enclosed box and instructed the participant to reach in and touch the six touch elements, which we presented one at a time with the order counterbalanced. We found no significant order effects, and the valence ratings mirrored those we found in the presence of vision.

⁴Because we used undergraduate students, we also included a measure that stated, “This pamphlet would encourage other people to be more likely to donate time or money to the Arboretum.” This question elicited slightly higher means than the students’ own willingness to donate, but we obtained the same pattern of results, so we do not report these.

⁵We were concerned that the autotelic dimension of the NFT scale would be too focused on product touch to capture the effects in this context. We administered an additional scale, which included items modified from the autotelic NFT scale to move away from referring to actual product touch (for a list of autotelic NFT items and additional touch items [called “Funtouch”], see Appendix B). We also analyzed all studies using the Funtouch items and found the same results as we did for the autotelic NFT items. For simplicity, we report only the autotelic NFT results.

TABLE 1
Attitude Toward the Pamphlet and Likelihood of Donating Time or Money × Autotelic NFT, Congruence, and Valence: Study 1 Means

Valence	Low Autotelic NFT			High Autotelic NFT		
	Incongruent	Congruent	Total	Incongruent	Congruent	Total
A: Attitude Toward Pamphlet						
Negative	4.67 ^a n = 19	5.06 n = 29	4.90 ^a n = 48	5.15 n = 31	5.21 n = 21	5.17 n = 52
Neutral	5.25 n = 24	5.60 n = 21	5.41 n = 45	5.29 n = 25	5.34 ^b n = 28	5.32 ^b n = 53
Positive	4.74 ^a n = 26	5.53 n = 22	5.10 n = 48	5.48 ^b n = 21	5.50 ^b n = 24	5.49 ^b n = 45
Total	4.90 ^a n = 69	5.36 n = 72		5.28 ^b n = 77	5.36 ^b n = 73	
Touch-element total			5.13 n = 141			5.32 ^b n = 150
No-touch-element total			5.40 n = 24			4.83 n = 28
B: Likelihood of Donating Time or Money						
Negative	2.74	3.14	2.98	3.29	3.38	3.33
Neutral	3.04	3.86	3.42	3.88 ^c	3.71 ^c	3.79 ^c
Positive	3.35	3.95	3.62	3.90 ^c	3.83 ^c	3.87 ^c
Total	3.07	3.60		3.65 ^c	3.66 ^c	
Touch-element total			3.34			3.65 ^c
No-touch-element total			3.54			2.75

^aCell means are significantly different from the control (no touch element) mean of 5.40 for low autotelic NFT.

^bCell means are significantly different from the control (no touch element) mean of 4.83 for high autotelic NFT.

^cCell means are significantly different from the control (no touch element) mean of 2.75 for high autotelic NFT.

Notes: All comparisons are based on planned contrasts. All scales are seven-point scales. For likelihood of donating time or money, cell means are significantly different from the control (no touch element) mean of 3.54 for low autotelic NFT.

.05). For participants who were low in autotelic NFT, negative sensory feedback significantly decreased persuasion for attitude toward the pamphlet compared with the no-touch-element control condition ($M_s = 4.90$ and 5.40 ; $F(1, 329) = 3.94, p < .05, \omega^2 = .02$). However, for likelihood of donating time or money, persuasion was unaffected ($p > .05$; for means, see Table 1). In addition, for participants who were low in autotelic NFT, positive or neutral touch elements did not influence persuasion compared with the no-touch-element condition.

Although not specifically hypothesized, we can examine the effect of valence within the touch-element conditions. Within the touch-element condition, we performed a 3 (valence) \times 2 (congruency) \times 2 (autotelic NFT) analysis; both attitude toward the pamphlet and likelihood of donating time or money were dependent variables. For both dependent variables, there was a significant main effect for valence of the touch element (attitude toward the pamphlet: $F(2, 279) = 3.16, p < .05, \omega^2 = .02$; likelihood of donating time or money: $F(2, 279) = 4.84, p < .05, \omega^2 = .04$). There was also a significant main effect of congruence, and a two-way interaction between congruency and autotelic NFT was significant for both dependent variables (we discuss this further with the congruence results); no other interactions were significant. When we used a touch element, a positively valenced or neutral valenced touch element was more

persuasive than a touch element that provided negative sensory feedback. For attitude toward the pamphlet, a neutral or positively valenced touch element resulted in a significantly more positive attitude toward the pamphlet than a negatively valenced touch element (negative [$M = 5.04$] versus positive [$M = 5.29$] touch element: $F(2, 279) = 2.85, p < .05, \omega^2 = .02$; negative versus neutral [$M = 5.36$] touch element: $F(2, 279) = 3.65, p < .05, \omega^2 = .02$). The difference between the mean attitude toward the pamphlet for a neutral touch feedback element and the mean attitude toward the pamphlet for a positive touch feedback element was not significant ($p > .05$).

With likelihood of donating time or money as the dependent variable, we found parallel results. A neutral or positive feedback from the touch element resulted in a significantly greater likelihood of donating time or money to the organization than a touch element that provided negative feedback (negative [$M = 3.16$] versus positive [$M = 3.74$] touch element: $F(2, 279) = 6.23, p < .01, \omega^2 = .04$; negative versus neutral [$M = 3.62$] touch element: $F(2, 279) = 4.84, p < .01, \omega^2 = .04$). As with attitude toward the pamphlet, the difference between the mean likelihood of donating time or money to the organization with a touch element that provided neutral feedback and a touch element that provided positive feedback was not significant ($p > .05$).

In addition to valence, we examined the effect of the congruency between the touch element and the message. We expected that for participants who were high in autotelic NFT, the congruency between the touch element and the message would not matter; both would be more persuasive than the no-touch-element control (H_{3a}). We found support for this hypothesis. For both dependent variables, pamphlets with both a congruent and an incongruent touch element were more persuasive than the control condition (control versus congruent: attitude toward the pamphlet: $M_s = 4.83$ and 5.36 ; $F(1, 329) = 4.61, p < .05, \omega^2 = .02$; likelihood of donating time or money: $M_s = 2.75$ and 3.66 ; $F(1, 329) = 7.52, p < .05, \omega^2 = .04$; control versus incongruent: attitude toward the pamphlet: $M_s = 4.83$ and 5.28 ; $F(1, 329) = 3.91, p < .05, \omega^2 = .02$; likelihood of donating time or money: $M_s = 2.75$ and 3.65 ; $F(1, 329) = 8.46, p < .05, \omega^2 = .04$).

For participants who were low in autotelic NFT, we expected that a message with a congruent touch element would be more persuasive than a message with an incongruent touch element, compared with the no-touch-element condition (H_{3b}). We found partial support for this. An incongruent touch element significantly decreased attitude toward the pamphlet compared with the no-touch-element control condition ($M_s = 4.90$ and 5.40 ; $F(1, 329) = 4.08, p < .05, \omega^2 = .02$), but it did not significantly influence likelihood of donating time or money ($M_s = 3.07$ and 3.54 ; $p > .05$). In addition, the presence of a congruent touch element did not significantly influence persuasion compared with the control condition ($p_s > .05$; for means, see Table 1).

Again, within the touch-element conditions, a 3 (valence) \times 2 (congruency) \times 2 (autotelic NFT) analysis yielded not only a significant main effect for valence of the touch element (as we previously reported) but also a significant main effect of congruence (attitude toward the pamphlet: $F(1, 279) = 5.06, p < .05, \omega^2 = .02$; likelihood of donating time or money: $F(1, 279) = 2.65, p = .10, \omega^2 = .01$). Most important, the expected interaction between congruency and autotelic NFT was significant for both dependent variables (attitude toward the pamphlet: $F(1, 279) = 3.59, p < .05, \omega^2 = .02$; likelihood of donating time or money: $F(1, 279) = 3.66, p < .05, \omega^2 = .02$); no other interactions were significant. In the touch-element condition, comparing congruent and incongruent touch elements yielded different results for participants who were high and those who were low in autotelic NFT. For those who were high in autotelic NFT, the congruency of the touch element to the communication did not influence either attitude toward the pamphlet ($M_s = 5.28$ and 5.36 ; $F(1, 329) = .06, p > .05$) or likelihood of donating time or money to the organization ($M_s = 3.34$ and 3.54 ; $F(1, 329) = .04, p > .05$). However, participants who were low in autotelic NFT had a more positive attitude toward the pamphlet when the pamphlet included a congruent touch element than when it included an incongruent touch element ($M_s = 5.36$ and 4.90 ; $F(1, 329) = 7.70, p < .05, \omega^2 = .03$), and they were also more likely to donate time or money to the organization in the congruent-touch-element condition than in the incongruent-touch-element condition ($M_s = 3.60$ and 3.07 ; $F(1, 329) = 5.98, p < .05, \omega^2 = .02$; see Table 1). It appears

that for participants who were high in autotelic NFT, both congruent and incongruent touch elements had a positive effect on both attitude toward the message and likelihood of donating time or money, but for participants who were low in autotelic NFT, a touch element that was incongruent with the message had a potentially negative effect.

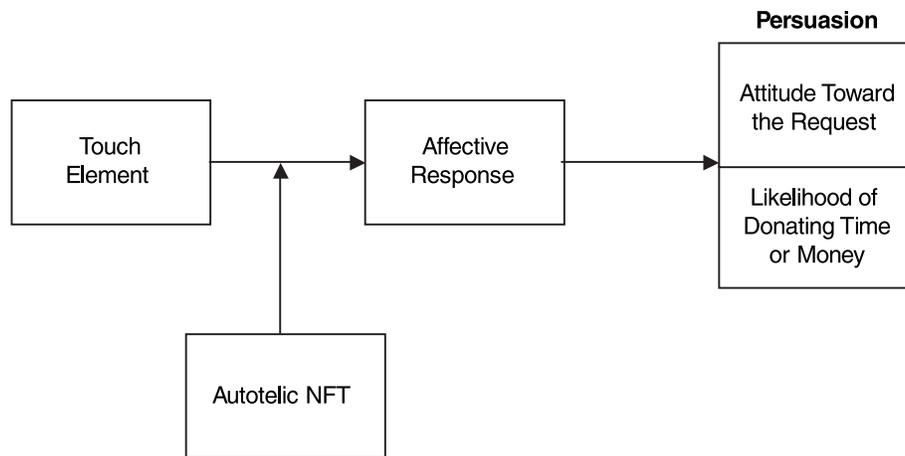
A content analysis of the participants' thoughts about the congruent and incongruent touch elements supported the predictions of H_{3a} and H_{3b} . Of the participants, 69 (20%) expressed confusion about the touch element and frustration at being unable to make sense of the connection between the touch element and the message. Of these participants, 52 were in the incongruent-touch-element condition, suggesting that participants indeed had difficulty making sense of an incongruent touch element and became frustrated as a result. Notably, there was no significant difference between participants who were high and those who were low in autotelic NFT in expressing confusion; 34 participants who were high in autotelic NFT and 35 participants who were low in autotelic NFT expressed confusion about the touch element. However, although the participants who were low in autotelic NFT exhibited a decrease in attitude toward the message in the incongruent condition, the participants who were high in autotelic NFT demonstrated no difference in attitude between the congruent and the incongruent conditions, suggesting that though the participants who were high in autotelic NFT were confused by the incongruent touch element, this confusion did not influence their attitudes.

Discussion of Study 1

For participants who were high in autotelic NFT, incorporating a touch element that conveys no product attribute information into a message increased persuasion. This effect occurred regardless of the congruence between the touch element and the message and was stronger for a touch element that provided neutral or positive sensory feedback than for a touch element that provided negative sensory feedback and compared with the no-touch-element control condition. However, participants who were low in autotelic NFT showed no differences in persuasion between the touch and the no-touch-element conditions; they responded negatively to the inclusion of a touch element that was incongruent with the message of the appeal. The results of Study 1 are consistent with the theory that touch creates an affective response for people who are high in autotelic NFT that, in turn, influences persuasion, whereas people who are low in autotelic NFT process touch as part of the message, and touch is persuasive only if it provides useful information. This implies that the relationship among touch, affective response, and persuasion may be a moderated mediation; that is, for people who are high in autotelic NFT, touch creates an affective response that mediates the relationship between touch and persuasion, but for people who are low in autotelic NFT, this mediation effect does not occur (see Figure 1). This leads to our fourth hypothesis:

- H_4 : The increased persuasion resulting from a message that incorporates a touch element is mediated by affective response for people who are high in autotelic NFT but not for those who are low in autotelic NFT.

FIGURE 1
Moderated Mediation Affect of Touch on Affective Response and Persuasion



Study 2

The purpose of Study 2 was to measure the affective response in both people who were high and those who were low in autotelic NFT to a message that incorporated a touch element and to determine whether this affective response mediated the relationship between touch and persuasion. We also attempted to find additional support for H_1 , which predicted that a touch element would be persuasive for people who are high in autotelic NFT but not for those who are low in autotelic NFT. Study 2 was a 2 (autotelic NFT: high versus low [determined by a median split]) \times 2 (touch element: present versus absent) design; the first factor was measured between subjects, and the second factor was manipulated between subjects.

Variables and Procedure

Two hundred four undergraduate students participated in the study in exchange for extra credit in a marketing class. Each participant read a pamphlet with the same message that requested that he or she make a donation of time or money to a fictional charity called Spread the Warmth, which provided blankets to needy families during the winter (see Appendix A). In the touch condition, a 4 \times 4 inch swatch of black fleece fabric that was similar to the texture of a blanket was attached to the pamphlet; the control condition had no touch element. After reading the pamphlet, participants completed a questionnaire that included measures of their affective response to the pamphlet (for scale items, see Appendix C), attitude toward the pamphlet, attitude toward the organization, and willingness to donate time or money to Spread the Warmth.⁶ Next, under the guise of a separate study, we administered the six-item

⁶In Study 2, we measured affective response using the two scales in Appendix C. We obtained parallel results for both scales. For simplicity, we report only the results of the first scale. In Study 3, we measured affective response using the emotional reaction scale because we determined that this scale had greater relevance, given the task in which participants were engaged.

autotelic NFT scale. Finally, we thanked the participants and debriefed them.

Results

With attitude toward the pamphlet as the dependent variable, there was a main effect for whether the touch element was present ($F(1, 200) = 5.25, p < .05, \omega^2 = .05$), a main effect of autotelic NFT ($F(1, 200) = 13.54, p < .01, \omega^2 = .08$), and a significant interaction between the two ($F(1, 200) = 4.24, p < .05, \omega^2 = .04$; for means, see Table 2). Participants who were high in autotelic NFT had a more positive attitude toward the message and a greater likelihood of donating time or money when the pamphlet included a touch element than when it did not (attitude toward the message: $M_s = 6.04$ and $5.46; F(1, 200) = 10.39, p < .01, \omega^2 = .06$; likelihood of donating time or money: $M_s = 5.70$ and $4.56; F(1, 200) = 20.75, p < .001, \omega^2 = .09$), in support of H_1 . In contrast, participants who were low in autotelic NFT had no significant difference in attitude toward the message between the touch and the no-touch-element conditions ($M_s = 5.27$ and $5.24; F(1, 200) = .02, p > .05$). Participants who were low in autotelic NFT showed a significant increase in their likelihood of donating time or money in the touch condition ($M_s = 5.00$ and $4.36; F(1, 200) = 5.41, p < .05, \omega^2 = .03$). For both dependent variables, there was a significant difference between people who were high and those who were low in autotelic NFT in the touch condition, suggesting that those who were high in autotelic NFT responded more strongly to the touch element than those who were low in autotelic NFT (attitude toward the message: $M_s = 6.04$ and $5.27; F(1, 200) = 15.67, p < .01, \omega^2 = .07$; likelihood of donating time or money: $M_s = 5.70$ and $5.00; F(1, 200) = 6.78, p < .05, \omega^2 = .04$; see Table 2). Attitude toward the organization was unaffected by the touch element ($p > .05$).

We conducted Study 2 to examine directly the difference in affective response to the touch element between people who were high and those who were low in autotelic NFT. As expected, we found that participants who were high in autotelic NFT had a stronger affective response to

TABLE 2

Attitude Toward the Message and Behavioral Intentions × Touch and No-Touch-Element Conditions × High and Low Need for Autotelic Touch: Study 2 Means (Standard Deviations)

	Low Autotelic NFT		High Autotelic NFT	
	No Touch Element	Touch Element	No Touch Element	Touch Element
	n = 55	n = 39	n = 50	n = 60
Attitude toward the pamphlet	5.24 (1.10)	5.27 ^b (1.02)	5.46 ^a (1.01)	6.04 ^{a, b} (.63)
Attitude toward the organization	6.22 (.80)	5.94 ^a (.89)	6.33 (.74)	6.35 ^a (.84)
Affective response	4.33 (1.01)	4.72 ^b (1.03)	4.54 ^a (1.14)	5.17 ^{a, b} (1.08)
Likelihood of donating time or money	4.36 ^a (1.57)	5.00 ^{a, c} (1.23)	4.56 ^b (1.53)	5.70 ^{b, c} (.79)

Notes: Numbers with the same superscript in the same row are significantly different at $p = .05$; means are based on seven-point scales.

the message in the touch condition than in the no-touch-element condition ($M_s = 5.17$ and 4.54 ; $F(1, 200) = 9.56$, $p < .05$, $\omega^2 = .05$), and those who were low in autotelic NFT had no significant differences in affective response to the message, depending on the presence of a touch element ($M_s = 4.72$ and 4.33 ; $F(1, 200) = 3.06$, $p > .05$; see Table 2). This is consistent with the proposed view that people who are high, but not those who are low, in autotelic NFT are influenced by affective response to touch.

We hypothesized that a touch element that influences persuasion would be mediated by a person's affective response to the touch element. However, we expected autotelic NFT to moderate this relationship (see Figure 1). Using LISREL 8 (Jöreskog and Sörbom 1993), we first estimated a path model using the full sample. For attitude toward the pamphlet, the path model supported complete mediation. The path from the touch element to affective response was significant ($\beta = .23$, $t = 3.41$, $p < .05$), the path from affective response to attitude toward the pamphlet was significant ($\beta = .50$, $t = 8.13$, $p < .05$), and the path from the touch element to attitude toward the pamphlet was not significant in the presence of the mediator ($\beta = .08$, $t = 1.33$, $p > .05$). The results were similar to the dependent variable of likelihood of donating time or money to the organization. The full model showed evidence of partial mediation. The path from the touch element to affective response was significant ($\beta = .23$, $t = 3.41$, $p < .05$), as was the path from affective response to the likelihood of donating time or money ($\beta = .53$, $t = 9.45$, $p < .05$). The path from the touch element to donating time or money remained significant in the presence of the mediator, indicating that in addition to mediation, there was a direct effect of the touch element on donating time or money to the organization ($\beta = .22$, $t = 3.90$, $p < .05$).

To gain further insight, we estimated simultaneous path models for both participants who were high and those who were low in autotelic NFT for each of the two dependent variables. In both cases, partial mediation was supported for those who were high in autotelic NFT, but mediation was not supported for those who were low in autotelic NFT. With attitude toward the pamphlet as the dependent

variable, for those who were high in autotelic NFT, the path from the touch element to affective response was significant ($\beta = .26$, $t = 2.91$, $p < .05$), as was the path from affective response to attitude toward the pamphlet ($\beta = .40$, $t = 5.23$, $p < .05$). Finally, the path from the touch element to attitude toward the pamphlet remained significant ($\beta = .20$, $t = 2.59$, $p < .05$), in support of partial mediation. In contrast, for participants who were low in autotelic NFT, the path from the touch element to affective response was not significant ($\beta = .19$, $t = 1.40$, $p > .05$); thus, mediation of affective response for participants who were low in autotelic NFT was not supported. The path from affective response to attitude toward the pamphlet was significant ($\beta = .81$, $t = 5.38$, $p < .05$), and there was no significant effect for the touch element on attitude toward the pamphlet ($\beta = -.12$, $t = .06$, $p > .05$).

The results were parallel for the dependent variable of the likelihood of donating time or money to the organization. For participants who were high in autotelic NFT, the path from the touch element to affective response was significant ($\beta = .21$, $t = 3.11$, $p < .05$), as was the path from affective response to the likelihood of donating time or money ($\beta = .32$, $t = 4.17$, $p < .05$). In addition, the path from the touch element to the likelihood of donating time or money was significant ($\beta = .32$, $t = 4.17$, $p < .05$). However, for participants who were low in autotelic NFT, the path from touch to affective response was not significant ($\beta = .17$, $t = 1.56$, $p > .05$), in support of differential processes for people who are high and those who are low in autotelic NFT. For participants who were low in autotelic NFT, the path between the touch element and the likelihood of donating time or money was also not significant ($\beta = .13$, $t = 1.56$, $p > .05$). Not surprisingly, the relationship between affective response and donating time or money to the organization was significant ($\beta = .70$, $t = 8.90$, $p < .05$).

Discussion of Study 2

Study 2 replicated the finding that participants who were high in autotelic NFT had a more positive attitude toward messages that incorporated touch elements than toward messages that did not incorporate touch elements. However, this difference did not occur among those who were low in

autotelic NFT. We also found that incorporating a touch element increased likelihood of donating time or money among both participants who were high and those who were low in autotelic NFT. This study also directly examined the affective response of those who were high and those who were low in autotelic NFT when encountering a touch element. Only participants who were high in autotelic NFT had a significantly stronger affective response to the message with the touch element than to the message with no touch element. In effect, for participants who were high in autotelic NFT, the touch element evoked an affective response beyond that which the message evoked. We found that this affective response mediated the relationship between touch and persuasion for participants who were high in autotelic NFT but not for those who were low in autotelic NFT.

Study 3

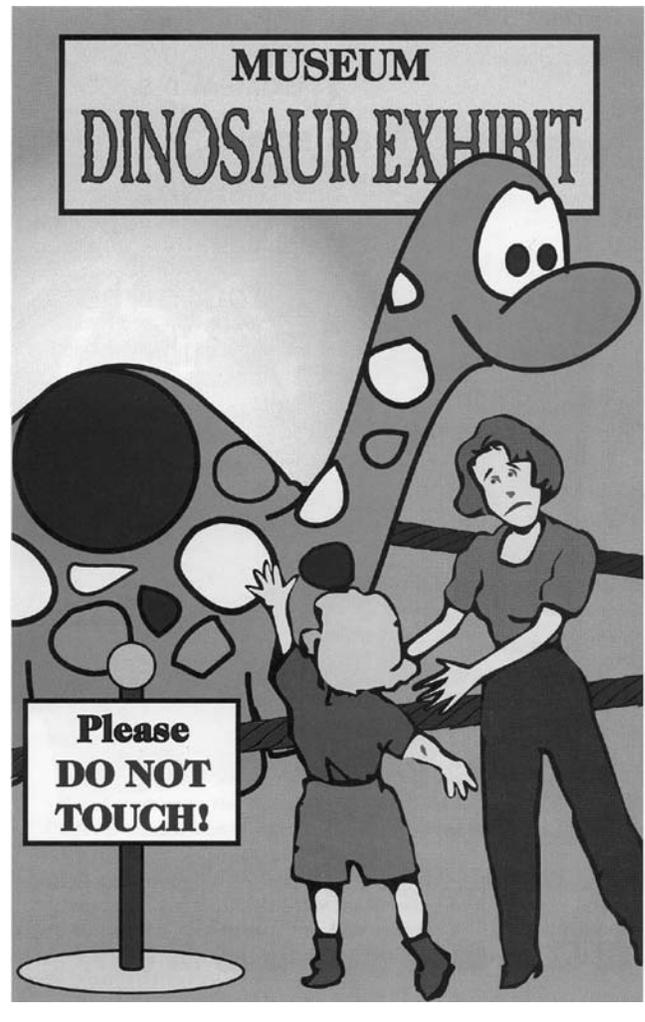
In Study 3, we tested whether the findings of Studies 1 and 2 could be replicated in a real-world situation, and we investigated the generalizability of our experimental findings. We partnered with a midwestern children's museum, a "hands-on" museum targeted to children aged eight and under. As a nonprofit organization, the museum often uses direct-mail appeals to solicit donations and museum memberships. Many of its publicity and fundraising materials stress the museum's unique hands-on features that encourage children to touch, making a touch element relevant to its message. However, the museum had never before incorporated a touch element into one of its direct-marketing efforts. Working with the fundraising staff at the museum, we designed a brochure to solicit new memberships. The cover of the brochure featured a picture of a cuddly looking, spotted, cartoon dinosaur with a child reaching out to touch it (see Figure 2). We then incorporated a touch element into half of the brochures. Because Studies 1 and 2 suggested that touch elements that provide positive sensory feedback are more persuasive, we used a touch element that was soft and pleasant to touch. For people in the touch-element condition, the largest spot on the dinosaur was a circle of red faux fur, which was found in a pretest to be soft and pleasant to touch. For people in the no-touch-element condition, the spot was printed like all the other spots on the dinosaur.

Study 3 was a 2 (autotelic NFT: high versus low [determined by a median split]) \times 2 (touch element: present versus absent) design; the first factor was measured between subjects, and the second factor was manipulated between subjects.

Variables and Procedure

We sent the mailing to a purchased list of approximately 2000 families in zip code areas with children under the age of eight who were not currently members of the children's museum. One thousand people on the mailing list received a brochure with a touch element, and the other thousand received the same brochure without a touch element. Each of the 2000 recipients of the brochure also received a questionnaire in the same package, which included questions about the recipient's attitude toward the message and likeli-

FIGURE 2
Brochure for Study 3



hood of donating time or money, control questions about the recipient's prior donations to the museum, and the autotelic NFT scale.⁷ We included prior donation behavior and prior visits to the museum as covariates; neither was significant ($p > .05$).

Sample Description

Of the 2000 questionnaires, 116 were returned, for a response rate of 5.8%. According to the Direct Marketing Association (2003), the overall average response rate for direct mail, including mailings to both house and prospect files, is 2.54%, suggesting that our response rate is reasonable. To help eliminate the concern of nonresponse bias, we compared questionnaires returned in the first week ($n = 79$, or 68%) with those returned in the subsequent three weeks; we found no significant differences in demographics or in independent or dependent variables. Of the responses, 61

⁷Because of survey length restrictions the organization imposed, we included only autotelic NFT.

(53%) were from the touch-element condition, and 55 (47%) were from the no-touch-element condition. The majority of our respondents were between the ages of 35 and 44 (53%), followed by ages 25–44 (37%), 45–54 (9%), and 60–64 (1%). The mailing-list company stated that 55% of its list were between the ages of 35 and 44 (compared with our 53%). Female respondents significantly outnumbered male respondents (102 women [88%] and 14 men [12%]).

Results

We expected that the touch element would increase attitude toward the message and behavior for participants who were high but not for those who were low in autotelic NFT. We hoped that we would be able to obtain a measure of actual membership resulting from the mailing. Unfortunately, only 3 of the 116 respondents that returned the survey became members of the museum, so we were unable to use this measure. We measured behavioral intentions through a question that asked, “After reading the brochure, how likely are you to become a member of the Children’s Museum?” with endpoints “very unlikely” (1) and “very likely” (7). There was a main effect of the touch element on both attitude toward the pamphlet and likelihood of becoming a member of the museum (attitude toward pamphlet: $M_s = 4.73$ and 5.34 ; no touch element versus touch element: $F(1, 112) = 7.42, p < .05, \omega^2 = .04$; likelihood of becoming a member: $M_s = 3.25$ and 3.92 ; $F(1, 112) = 4.68, p < .05, \omega^2 = .03$). However, this was qualified by a significant interaction. In support of H_1 , the expected interactions between the presence or absence of a touch element and autotelic NFT for both attitude toward the brochure and likelihood of becoming a museum member were significant (attitude toward the brochure: $F(1, 112) = 10.57, p < .01, \omega^2 = .09$; likelihood of becoming a member: $F(1, 112) = 5.23, p < .05, \omega^2 = .05$).

Using planned contrasts, we found that participants who were high in autotelic NFT had a more positive attitude toward the pamphlet and would be more likely to become a member of the museum when a touch element was present than when it was absent (attitude toward the pamphlet: $M_s = 5.58$ and 4.26 ; $F(1, 112) = 6.44, p < .05, \omega^2 = .05$;

likelihood of becoming a member: $M_s = 4.39$ and 3.43 ; $F(1, 112) = 4.01, p < .05, \omega^2 = .04$; see Table 3). In contrast, as we expected, participants who were low in autotelic NFT were not influenced by the touch element (attitude toward the pamphlet: $F(1, 112) = 1.53, p > .05$; likelihood of becoming a member: $F(1, 112) = .55, p > .05$). For attitude toward the pamphlet as the dependent variable, we found no main effect of autotelic NFT ($p > .05$); however, we did find a significant main effect of autotelic NFT on likelihood of becoming a member ($M_s = 4.03$ and 3.13 for participants who were high and those who were low in autotelic NFT, respectively; $F(1, 112) = 6.51, p < .05, \omega^2 = .06$). As in Studies 1 and 2, the presence of a touch element did not influence attitude toward the organization (all $p_s > .05$).

Discussion of Study 3

Study 3 replicated the results of Study 1 in a real-world setting, using a more heterogeneous population than the previous studies. Thus, we are more confident that our results generalize to the general population. A touch element that provided positive sensory feedback incorporated into a real marketing brochure with a congruent message increased attitude toward the brochure and behavioral intentions among recipients who were high in autotelic NFT without diminishing attitude toward the brochure or behavioral intentions among those who were low in autotelic NFT. This demonstrates that incorporating a touch element into a message indeed results in a net increase in persuasion, even if the touch element does not provide any additional instrumental information.

General Discussion

In three studies, we found that the incorporation of touch into marketing messages can have a positive effect on persuasion for people who are high in autotelic NFT. When a touch element was used, a positively valenced or neutral element was more persuasive than when a touch element that provided negative sensory feedback was used. For participants who were high in autotelic NFT, compared with a no-touch-element control condition, a positively valenced or neutral touch element increased persuasion, and a nega-

TABLE 3
Attitude Toward the Message and Behavioral Intentions × Touch and No-Touch-Element Conditions × High and Low Need for Autotelic Touch: Study 3 Means (Standard Deviations)

	Low Autotelic NFT		High Autotelic NFT	
	No Touch Element n = 32	Touch Element n = 23	No Touch Element n = 23	Touch Element n = 38
Attitude toward the pamphlet	5.07 (1.18)	5.00 (1.66)	4.26 ^a (.84)	5.58 ^a (1.02)
Attitude toward the organization	5.58 (1.45)	5.62 (1.45)	5.96 (1.22)	5.91 (1.14)
Likelihood of becoming a member	3.12 (1.11)	3.13 (1.82)	3.43 ^a (2.02)	4.39 ^a (1.53)

Notes: Numbers with the superscript in the same row are significantly different at $p = .05$; means are based on seven-point scales.

tively valenced touch element did not influence persuasion. However, for participants who were low in autotelic NFT, compared with the no-touch-element condition, a touch element that provided negative feedback decreased persuasion, whereas a touch element that provided positive or neutral feedback did not influence persuasion.

In Study 2, we examined the process by which a touch element that provided positive sensory feedback influenced persuasion. We found that the persuasive effect occurred because of an affective or emotional response to the experience of touch. Participants who were high in autotelic NFT experienced an emotional response due to the touch element, but participants who were low in autotelic NFT did not exhibit this same response. This emotional response to the touch element mediated the relationship between the presence of the touch element and persuasion.

In addition to the types of sensory feedback the touch element elicited, we examined the influence of the congruency of the touch element with the overall message. For participants who were high in autotelic NFT, a touch element increased persuasion, regardless of whether the touch element was congruent with the overall marketing message. However, for participants who were low in autotelic NFT, incorporation of a touch element that was not congruent with the message actually decreased the persuasiveness of the message.

Note also that in both Study 2 (the “Feel the Warmth” study) and Study 3 (the children’s museum field study), we found a main effect of the presence of a touch element on persuasiveness. This is likely because both of these studies used a touch element that provided positive sensory feedback, which participants perceived as fitting the persuasive message.

Limitations and Further Research

Although this research found strong consistent effects that suggest that touch has a positive affective influence on persuasion, we should recognize some limitations. We were not successful in our attempt to obtain a behavioral measure of persuasion. Further research should examine the effects of touch on actual behavior. In addition, we were unable to find an effect of touch on attitude toward the organization. Although an increase in attitude toward the message and behavioral intentions are positive outcomes for marketers, the focus on building relationships with consumers that has become prevalent in the marketing literature suggests that persuasive elements would be more valuable if they could contribute to a broader attitude toward the organization. Further research may be able to determine whether there are conditions under which the persuasive effects of touch can be extended to the organization that sponsors the message. For example, repeated exposures to the message may influence attitude and behavior toward the organization.

Another possible limitation is that we examined only the process of affective response using a touch element that was positively valenced. In particular, we used softness because it has been associated with a pleasant sensory feeling and has been used in touch research (Bushnell and Boudreau 1991; Essick, James, and McGlone 1999). Further research should continue to explore process issues by

examining the affective response to neutral and negatively valenced touch elements. It could also be the case that the emotional response to the touch element is moderated by other factors. In the current research, participants who were high in autotelic NFT exhibited a stronger affective response to touch elements than did participants who were low in autotelic NFT. We know from previous research (Peck and Childers 2003b) that touch information is also more accessible for high- than for low-NFT people. Thus, not only do high-NFT people respond more strongly to touch information, but they also may weigh it more heavily when forming evaluations. Thus, it seems likely that a touch element could be effective for high-NFT people under both high- and low-involvement conditions. Further research should be conducted to examine the issue of involvement as it relates to high- and low-NFT people and the processes of evaluation and persuasion.

Implications

Theoretically, this research extends touch research in marketing. Previous research has focused solely on product touch, which has been found to influence persuasion when it provides instrumental attribute or structural information about the product (e.g., McCabe and Nowlis 2003; Peck and Childers 2003a). Our research found that touch can also be used as a persuasive element outside of the product touch context by providing an enjoyable hedonic experience for the consumer. In addition, this research examined the process by which hedonic touch influences persuasion and the differences between people who are high and those who are low in autotelic NFT. For people who are high in autotelic NFT, incorporating a touch element into a persuasive communications message creates an affective response that increases attitude toward the message and behavioral intentions. For people who are low in autotelic NFT, a touch element does not generate a significant increase in their affective response.

This research implies that touch could be incorporated into marketing messages in a variety of contexts. People who are high in autotelic NFT will experience affective responses and greater persuasion when they receive a message that incorporates touch, especially when the touch element provides neutral or positive sensory feedback. However, to avoid decreasing persuasion for people who are low in autotelic NFT, marketers must ensure that the touch element is congruent with the overall marketing message, and it should not be negatively valenced. That said, the various touch elements we used suggests that congruency between the touch element and the message can be interpreted more broadly than previous research on congruency has suggested. For example, in our study, participants evaluated sandpaper as being congruent with an arboretum. A similar piece of sandpaper was used in an actual direct-mail brochure that a charity used to solicit donations to help children living in poverty in India. On the front of the brochure, there was a two-inch square of sandpaper, and underneath it were the words, “TOUCH THIS....” When the pamphlet was opened, there was a picture of a boy, and underneath the picture were the words, “To Feel 9-year-old Mallesh’s hand.” The experience of touching the sandpaper likely cre-

ates an image of the child's suffering and generates an affective response of sympathy, which may lead people to make donations to the charity. This suggests that marketers can use touch in a variety of contexts, provided that people who are low in autotelic NFT will be able to find some way to make sense of the touch element.

Touch can be used as a persuasive tool beyond brochures that request charitable donations. In some direct-marketing situations, it may be possible to segment customers on the basis of autotelic NFT. Many direct marketers, such as Land's End, currently provide customers with the opportunity to request touch information, such as fabric swatches. It is likely that a person who requests a fabric swatch is high in autotelic NFT because prior research has found a correlation between instrumental and autotelic NFT (e.g., Peck and Childers 2003a, b). Although it may be too expensive to mail a touch-enhanced catalog to all customers, a direct marketer could customize mailings to customers who request fabric swatches.

Regarding the area of product packaging, the current research suggests that the packaging opportunities are not limited to providing touch attribute information. New print technologies are being introduced that provide tactile effects, which encourage consumers to touch (Kaleido 2004). It is likely that people who are high in autotelic NFT are more likely to approach and examine such packages than are people who are low in autotelic NFT, because the former enjoys the sensory experiences of touch. A product package that is interesting to touch may increase sales of the product even if the opportunity to touch does not provide additional product attribute information. Some evidence suggests that tactile elements of product packaging can even contribute to the overall brand image of a product. For example, Lindstrom (2005) discusses Coca-Cola's use of the nostalgic glass bottle to reinforce its brand image and suggests that it is the tactile sensation, the feel of the bottle in the customer's hand, that is associated with the brand.

Note that in this research, we investigated the sensory aspects of touch independent of product attribute information. However, product touch that conveys attribute information may also provide interesting sensory feedback, which would likely affect attitude toward the product beyond the touch attribute information. For example, the courier envelopes we mentioned previously convey the product benefit of the strength of the paper. This research suggests that the smooth, pleasant feel of the paper can also increase product evaluation.

Touch also has significant implications for in-store and point-of-purchase displays. People who are high in autotelic NFT are drawn to opportunities to touch and are likely to respond to opportunities to touch clothing, paper goods, and other products that provide positive sensory feedback, even if they are not in the process of evaluating the product. A display that encourages touch may lead customers to interact with products that they otherwise would have ignored, which in turn may increase impulse and unplanned purchases (Peck and Childers 2006).

Finally, this study suggests that touch can be used along with pictures, photos, color, humor, and other elements to increase the persuasiveness of print advertising. Touch

elements are unexpected information and have been shown to increase the persuasiveness of advertisements, provided that they are congruent with the message (Lee and Mason 1999). Recent trends in advertising have focused on the experiential and aesthetic aspects of communication (e.g., Schmitt 1999; Schmitt and Simonson 1997). Incorporating touch may be the next step in adding a hedonic or experiential aspect to advertising and other marketing communications.

Appendix A **Text of Messages for Studies 1** **and 2**

Study 1

A little piece of nature, nestled in the middle of the city, the Arboretum is a perfect place for a stroll, curling up under a tree with a good book, watching birds and local wildlife, or an evening of stargazing.

But the Arboretum is more than just a park. It is a research and teaching facility that provides a place for people to develop a positive relationship with nature.

Every day, the Arboretum brings more people back in touch with nature with environmental tours, class and lectures, and special outreach programs at local schools. It is an exceptional resource for learning, sharing, discovering, and enjoying—a cherished gem of nature in an urban setting.

The Arboretum also provides great opportunities to get in touch with nature directly with hiking, biking and jogging trails, and even trails for skiing and snowshoeing.

The Arboretum has been a pioneer in the restoration, and management of ecological communities since the 1930's. The Arboretum strives to conserve, restore and preserve the natural lands of the city so that residents can enjoy the beauty of nature for years to come.

As part of this goal, we recently embarked on a capital campaign to further improve the Arboretum through a new addition to the visitor's center and the installation of the four-acre Native Plant Garden. This project will help the Arboretum improve and expand programs for university, public and professional audiences.

You can help to bring more people in touch with nature by becoming a Friend of the Arboretum. We gratefully welcome your gift because every gift enhances our ability to provide quality programs and experiences for everyone who enjoys and learns from the Arboretum.

Study 2

Feel the warmth of a warm winter blanket.

Winters can be icy cold, especially at night. There's nothing like curling up under a thick, cozy, warm blanket to keep out the harsh winter chill. But for some families, that warm, cozy feeling is just out of reach.

Spread the Warmth helps families in need to keep warm this winter by providing them with new and gently used blankets. But we need your help to spread the warmth before the first big winter chill hits our state this year.

Spread the Warmth needs volunteers to deliver blankets in our city and donations to help us to purchase enough blankets to keep everyone warm. Please help us spread the warmth this winter.

Appendix B Autotelic NFT Items

Autotelic NFT (6 items)

1. When walking through stores, I can't help touching all kinds of products.
2. Touching products can be fun.
3. When browsing in stores, it is important for me to handle all kinds of products.
4. I like to touch products even if I have no intention of buying them.
5. When browsing in stores, I like to touch lots of products.
6. I find myself touching all kinds of products in stores.

We measured all items on a seven-point Likert-type scale: $\alpha = .92$ (source: Peck and Childers 2003b).

Funtouch (3 items)

1. I enjoy touching various textures.
2. I am a person who likes to touch.
3. Touching in general is fun.

We measured all items on a seven-point Likert-type scale: $\alpha = .94$.

Appendix C Affective Response Items

Affective Response (4 items)

1. This mailing was very enjoyable.
2. This mailing was very likeable.
3. This mailing was very persuasive.
4. This mailing was very interesting.

We measured all items on a seven-point Likert-type scale: $\alpha = .86$ (source: Zinkhan and Martin 1983).

Emotional Reaction (10 items)

Here is a list of emotional reactions you may have experienced while reading the mailing (touching the swatches). Please indicate how much you felt each of these emotional reactions.

- Interested
- Moved
- Captivated
- Inquiring
- Confident
- Delighted
- Enthusiastic
- Appealed
- Satisfied
- Amused

We measured all items on a five-point scale, with endpoints "not at all" and "a lot": $\alpha = .84$ (source: Derbaix 1995).

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