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Rediscovering Satisfaction

The authors present a phenomenological and longitudinal investigation of satisfaction, as revealed through consumers' ownership experiences with technological products. The study seeks to serve a provocative role in this mature research area by stepping back from the historically dominant comparison standards paradigm to question, invigorate, and, in certain ways, redirect satisfaction research along emergent lines. Although results show that the dominant paradigm of satisfaction and its competing models (i.e., those based on the confirmation/disconfirmation of preconsumption standards) are distinctly operative in some of the consumer cases, they are also found to be insufficient or even irrelevant in others. The authors consider several theoretical extensions in light of this learning and induct a new satisfaction paradigm. Overall, the findings support a more holistic, context-dependent, and dynamic process of satisfaction. This process is revealed as a multi-model, multi-modal blend of motivations, cognitions, emotions, and meanings, embedded in sociocultural settings, which transforms during progressive and regressive consumer-product interactions.

Consumer satisfaction is central to the marketing concept. With evidence of strategic links between satisfaction and overall firm performance (Anderson, Fornell, and Lehmann 1992), it is now common to find mission statements designed around the satisfaction notion, marketing plans and incentive programs that target satisfaction as a goal, and consumer communications that trumpet awards for satisfaction achievements in the marketplace.

Research on satisfaction has been commensurate with its growing managerial importance. Most studies have been conducted within the overarching comparison standards (CS) paradigm, which posits that consumers hold preconsumption product standards, observe product performance, compare performance with their standards, form confirmation or disconfirmation perceptions, combine these perceptions with standards levels, and then form summary satisfaction judgments (Oliver 1989). An extensive and respected research tradition has supported this paradigm and its assorted models.¹ Rarely do researchers consider consumer satisfaction from a perspective other than that of the CS paradigm, especially as examined through an econometric or survey lens (Iacobucci, Grayson, and Ostrom 1994).

¹We use the term *models* to refer to specific theoretical representations within a general conceptual "paradigm." Differences in comparison standards thus represent different models of satisfaction within the CS paradigm (cf. Tse and Wilton 1988).

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However, reliance on a single paradigm or method may pose serious limitations for any marketing phenomenon (cf. Fournier and Yao 1997; Mick and Buhl 1992), including consumer satisfaction (cf. Arnould and Price 1993). Following this same logic, we explore consumer satisfaction using a comparatively nontraditional approach: lengthy and unstructured in-home interviews—some of which tracked new owners of technological products over time. Our approach permits us to step back from the dominant paradigm to explore and describe satisfaction from the firsthand viewpoints of the persons involved. Our goals are threefold: (1) to develop a more realistic account of satisfaction as it unfolds in the course of daily life, (2) to contrast this learning with the prevailing paradigm and its models to reveal anomalies and omissions of the dominant approaches, and (3) to propose extensions and new discoveries that address the limitations and exclusions in existing theory.

Literature Overview

Thorough summaries and critiques of the marketing satisfaction literature exist (Anderson and Fornell 1994; Iacobucci, Grayson, and Ostrom 1994; Yi 1990) and need not be duplicated here. Our study goals require only a selective overview of past research to highlight areas of closure on important theoretical issues and the concomitant need for research that breaks with established tradition.

Satisfaction generally is conceptualized as an attitude-like judgment following a purchase act or based on a series of consumer-product interactions (Yi 1990). The popular view is that the confirmation/disconfirmation of preconsumption product standards is the essential determinant of satisfaction (Erevelles and Leavitt 1992; Oliver 1996). This CS paradigm posits that confirmed standards lead to moderate satisfaction, positively disconfirmed (exceeded) standards lead to high satisfaction, and negatively disconfirmed (underachieved) standards lead to dissatisfaction. Several different comparison standards—each exclusively tied to positively valenced aspects of product features and their implications for consumers—have been used in past research. By far the most common are *predictive expectations* of at-

tribute performance, as incorporated in the expectations-disconfirmation (ED) model of satisfaction response (Boulding et al. 1993; Oliver 1996; Tse and Wilton 1988). *Desires* based on features and benefits that are considered ideal or aspirational in the product domain have also been recommended (Westbrook and Reilly 1983). Other models use *equity expectations* based on what the consumer believes reasonably should occur given the product/service price (Oliver and Swan 1989) and *experience-based norms* derived from personal experiences or information received (Cadotte, Woodruff, and Jenkins 1987). Although these four types of comparison standards reflect the four principal satisfaction models articulated within the CS paradigm, past researchers probably have overemphasized the significance of predictive expectations and the ED model (Cadotte, Woodruff, and Jenkins 1987). Iacobucci, Grayson, and Ostrom (1994) recently called for research into conditions that determine the use of certain standards over others and the possibility of multiple simultaneous standards, and new empirical work has begun to support these ideas (Spreng, MacKenzie, and Olshavsky 1996).

A few CS paradigm researchers have gone beyond these cognitively toned model formulations to consider the affective nature of satisfaction (Oliver 1996; Westbrook 1987). Perhaps most intriguing is Oliver's (1989) suggestion that there exist five different modes or prototypes of satisfaction: *contentment* (with its primary affect of acceptance or tolerance), *pleasure* (a positive reinforcement state that involves the evocation or enhancement of a positive, well-liked experience and a primary affect of happiness), *relief* (a negative reinforcement state occurring when an aversive state is removed), *novelty* (expectations of the unexpected that yield a primary affect of interest or excitation), and *surprise* (a primary affect of either delight or outrage as occurs when the product performs outside the range of expectations). Empirical examination of these modes has just begun, with initial results indicating a more parsimonious structure than originally proposed (Oliver 1996). In any event, these ideas clearly suggest that research within the CS paradigm has likely underrepresented the emotional aspects of satisfaction and that further study of affective satisfaction modes could play a promising corrective role.

Although satisfaction has been conceptualized in terms of either a single transaction (i.e., an evaluative judgment following the purchase occasion) or a series of interactions with a product over time, Anderson and Fornell (1994) note that nearly all satisfaction research has adopted the former, transaction-specific view. Indeed, several observers have chastised the marketing field for treating satisfaction as a static evaluation derived from a lone trial event, noting that comparison standards are likely to change with consumer experience (Iacobucci, Grayson, and Ostrom 1994). A pungent critique by Tse, Nicosia, and Wilton (1990) contends that (1) satisfaction is not an evaluative state but a process extending across the entire consumption horizon and (2) the study of consumer-product interactions following purchase is fundamental to advancing knowledge along these lines. Among the few satisfaction studies that have adopted longitudinal designs, most remain wedded to the CS paradigm

(e.g., Bolton and Drew 1991; LaBarbera and Mazursky 1983; Richins and Bloch 1991).

In summary, lengthy reviews and empirical applications suggest that satisfaction research founded on the CS paradigm is maturing. At the same time, some propose that this tradition has calcified into certain beliefs and methodological predilections that obstruct new knowledge breakthroughs. Iacobucci, Grayson, and Ostrom (1994, p. 57) present their review as "a flashing yellow light—serving as a warning to look closer at status quo conceptualizations before proceeding further." Despite—or possibly because of—the seasoned status of this research domain, satisfaction has not been considered thoroughly as it is experienced and expressed through the consumer's own voice. As yet, the marketing field has not assessed critically whether the CS paradigm and its models characterize satisfaction accurately and comprehensively in the contexts of daily life.

Methodology

We investigated satisfaction through lengthy and repeated in-home interviews that focused on consumers' purchase and usage experiences with technological products.² Because technological products are often complex and involving, they fit the profile encouraged by Wilton and Nicosia (1986) for advancing insights on satisfaction in the postpurchase period. Moreover, because technology is central to contemporary life (Joerges 1988) and reflects deep-seated cultural values (Borgmann 1984), it provides a particularly evocative arena for learning more about satisfaction through personal accounts and behaviors. Last, because technology as a cultural category often is associated with attributes of newness, consumers' purchase and usage experiences prove especially salient, yielding greater possibility for new substantive findings and related theory development. This characteristic newness also affords a juxtaposition to "the before" and "the after" of product adoption—a reference frame that is integral to the pre- and postcomparison aspects of the CS paradigm.

Our study breaks with tradition in satisfaction research in several ways. First, through longitudinal preconsumption and at-consumption interviews, we consider the process aspects of satisfaction directly. Second, we examine satisfaction from the consumer's perspective, with firsthand accounts contained in descriptions of salient past experiences (i.e., critical incident reports) as well as current and evolving experiences. Third, in responding to a call for "including more of the character of the consumer in satisfaction research" (Iacobucci, Grayson, and Ostrom 1994, p. 57), data collection and analysis attend carefully to sociocultural and personal lifeworlds, thus allowing for representation of context and meaning in consumers' satisfaction experiences.

²As per Joerges (1988, p. 221), we define *technology* as "artificial things, and more particularly modern machines: artificial things that (a) require engineering knowledge for their design and production, and (b) perform large amounts of operations by themselves." This definition covers a wide range of consumer products, including but not limited to the newest, high-tech variety. It also converges with consumers' opinions about the meaning of *technology*, which arose in different data sets during the present study.

Overall, the study qualifies as a phenomenology (Thompson, Pollio, and Locander 1994) of satisfaction and parallels the philosophy and thrust of qualitative research on technology in several nonmarketing domains (e.g., Lindlof 1992; Livingstone 1990; Moores 1993a; Morley 1986; Silverstone 1990).

Our pilot research included four exploratory interviews, a focus group on technological possessions, and several interviews with consumers at a car repair center. In addition to helping design the primary interviews described subsequently, this exploratory research occasionally provides supplementary and confirmatory evidence in the analyses that follow.

Two data sets of interviews are emphasized in the present analysis.³ The first involved two long in-home interviews (as per McCracken 1988) with 16 informants (32 total interviews; each ranging from 90 minutes to three hours). Informants comprised a convenience sample of casual acquaintances of the authors; informant selection leveraged prior knowledge of the personal and sociological backgrounds of the persons concerned. The first interview in this series sought background information about informants as well as their definitions of the broad, subjective category of technology. The second interview probed informants' experiences with specific technological possessions. Following the principles of phenomenological inquiry, this interview started with the prompt, "Tell me about a technological product you own that you would like to talk about." Informants thus were allowed to select a technological possession that was salient to them and to reveal satisfaction as it naturally occurred in their interactions with that particular technology. Interviewers probed for elaboration on the basis of informants' own words (e.g., evaluative expressions describing the product interaction) and of ideas from the marketing satisfaction literature (e.g., preconsumption standards). It was common in these follow-up interviews for informants to mention and discuss several other technological possessions, which led to further probing and elaboration.

The second data set involved longitudinal interviews with 13 persons and/or families intercepted at consumer electronics retail stores as they were purchasing for themselves a technological product they had not owned previously. The focus on products sold through electronics outlets resulted from the background interviews noted previously, which suggested that mechanical, computerized, and electronic products embody the essence of the technological (see footnote 2). Informants were interviewed in their homes three times: within 24 hours of purchase (but prior to actual product usage), at six to eight weeks after purchase, and again at six to eight months, yielding a total of 39 interviews ranging from 90 minutes to three hours each. Probing during these interviews followed the same strategy as in the other primary data set.

³These data sets, plus a few others and the aforementioned pilot research, are part of a larger study on consumers and technology supported by the Marketing Science Institute. Full details are provided in Mick and Fournier's (1995) report.

Informants included in these two primary data sets purposively spanned a range of demographics thought to influence consumers' responses to technological products. Informants' ages ranged from 20 to 79 years, and the gender split was approximately even. Occupations were also quite varied. Nearly all were Caucasian, however, and most were members of the middle to upper-middle class. The specific products examined in the study were also diverse.⁴ Technologies at different life cycle stages were considered, including really new products at the time (e.g., caller identification [ID] devices) as well as highly diffused items (e.g., microwave ovens). Products also differed in difficulty of operation, ranging from the simple (e.g., clothes dryer) to the complex (e.g., computer). Variability in product life cycle and sophistication precipitated differences in postadoption experiences, expanding the range of potential new insights.

The two authors conducted all interviews, each taking separate responsibility for an interview series with a given informant. Throughout the project, the authors engaged in a dyadic memo writing process for recording literature reviews, registering hypotheses and interpretations, and marking directions for further inquiry. More than 125 memos were written in the course of the project.

Data Analysis

Our analytical approach flowed from the study's objectives and followed Burawoy's (1991) call for using qualitative data both to challenge existing theory and to develop new theory. Data were coded and interpreted according to the extant CS paradigm and its models, leading to the identification of extensions and anomalies. For building grounded theory, we adhered to guidelines articulated by Strauss and Corbin (1990). Negative cases—those that did not clearly fit a priori satisfaction frameworks—played a critical role in the analysis, serving as springboards for the modification of existing, or instantiation of new, satisfaction paradigms, models, and modes.

Data analysis took place both during data collection, to take advantage of opportunities to follow up on emergent ideas, and afterward, to collate insights in view of the entire corpus of data. Each author separately coded the transcripts, using a priori categories (e.g., predictive expectations) and emergent categories (e.g., product metaphors, negatively valenced expectations) that were negotiated between the authors. Each author then wrote a memo reflecting his or her narrative interpretation of the satisfaction process evinced within a given case. After moving back and forth between the two memos, pertinent case data, and relevant literature, we came to agreement regarding a final case "story line." One of the authors then wrote a memo summarizing the in-

⁴Products discussed across the two primary interview data sets included telephone answering machines (seven informants/households), computers (five), televisions (three), video cameras (two), microwave ovens (three), portable phones (three), caller ID devices (two), automobiles (two), and single instances of a clothes dryer, bread maker, dishwasher, stereo system, juicer, stove/oven, underground sprinkler system, weed trimmer, video disc system, garage door opener, computer software, leaf blower, and depth finder (for fishing).

terpretive outcomes of the particular case analysis. The ending analytic goal was to generate thick interpretations of consumers' satisfaction experiences based on the histories, current life contexts, and various product interactions of the parties involved. Throughout the analysis we circled back to relevant literature and again to the data in developing codes and interpretations. This "tacking strategy" extended into the review process, in which nonmarketing literature that also intimates satisfaction issues was recommended and incorporated. Triangulation of insights across informants and researchers, plus selected member checks (comments on the paper by informants), were employed to elevate the trustworthiness of the findings.

Findings

Our goals in presenting the findings are to maximize revealed data about selected cases and to do so more efficiently than commonly is observed in qualitative studies in marketing and consumer research. To those ends, we present in the Appendix eight exemplary story lines that resulted from our interpretative efforts. Because these vignettes supply details necessary to comprehend more fully the analyses that follow, we recommend reviewing the Appendix before going forward. Additional cases are brought occasionally into the subsequent discussion for their complementary or contrasting qualities. Taken together, the cases illustrated and discussed are chosen for their ability to point toward plausible theoretical insights; through either their representativeness of major themes or, in a few instances, their distinctiveness. The findings are structured according to three theory-relevant categories: (1) support and extension of the CS paradigm and its models, (2) revealed anomalies of the CS paradigm, and (3) induction of a new satisfaction paradigm. Relative attention to these categories is commensurate with our goals, with theory-building findings given precedence over those that confirm extant views.

Support for and Emergent Extensions of the CS Paradigm and Its Models

The ED model. Consistent with considerable prior research, the ED model was clearly evident in our data. Consider, for example, Ben's purchase of an answering machine (Appendix, Case A). Ben formed definite preconception expectations regarding specific product features (e.g., remote access dial-in) and benefits (e.g., capturing social invitations and receiving notice of available work hours). In the early weeks of ownership, these expectations largely were met, leading Ben to declare himself "satisfied" with his purchase and reflecting Oliver's (1989) satisfaction-as-pleasure mode. Hank's satisfaction with his bread maker (Case B) also derived from confirmed predictive expectations for convenience benefits anticipated and received.

As noted previously, the ED model has been restricted historically to expectations for positively valenced product features and benefits that, when confirmed or positively disconfirmed (overachieved), lead to satisfaction and, when negatively disconfirmed (underachieved), lead to dissatisfaction. Interestingly, we observed cases in which the logic of the standard ED model was reversed, with *disconfirma-*

tion of disbenefits compelling satisfaction. Oliver (1996) discusses this possibility, building on work by Richins and Bloch (1991) that examines how the alleviation of product problems helps determine satisfaction judgments. Research on television use in the home implicates this same issue (Hirsch 1992), though not relating it explicitly to consumer satisfaction per se. From our data, consider Bonita's story (Case C). Bonita's product expectations were largely negative, stemming from a genuine fear of becoming a "slave to technology." Specifically, she expected that her new answering machine would make demands on her that she dreaded, leading to increased phone contact and unavoidable machine maintenance. Satisfaction evolved over the first six months of ownership nonetheless—a result of the failure of her anxieties to come to fruition. That is, Bonita's predictive expectations about disbenefits were negatively disconfirmed or underachieved, compelling a relieved and contented satisfaction.

A related case involved Paul, his wife Mary, and their seven-year-old car Matilda. Matilda was "a temperamental car requiring constant repairs" that occasionally left the couple "stranded, feeling exposed, just a constant feeling of vulnerability." Just before one of our interviews the couple drove Matilda 1700 miles, over mountains, to visit an ailing grandmother. As Paul described it,

We were afraid she was going to break down every mile we went, and she never did and we got back here and I think the first thing I did the next day as a kind of reward to the car, I wound up washing it and changing the oil, you know, that it had somehow earned this kind of treatment ... giving Matilda her due.

Similar to Bonita, Paul and Mary's satisfaction could not have arisen had their nervous expectations been confirmed or positively disconfirmed (overachieved), as per the conventional ED model. Rather, satisfaction came about, at least in part, because predictive expectations about product disbenefits were negatively disconfirmed.

The desires model. Spreng, MacKenzie, and Olshavsky (1996) and others (Westbrook and Reilly 1983) have formulated satisfaction in terms of the consumer's assessment of the degree to which a product meets or exceeds desires (also known as ideal expectations). Applying a means-ends theoretical framework, these authors define desires as the levels of product attributes or benefits that a consumer believes will lead to, or are connected with, higher-order terminal values. Ben's initial satisfaction with his answering machine (Case A) derives in part from his achieved desire to maintain and reciprocate social contact with others, whereas Bonita's satisfaction (Case C) partly reflects a fulfilled desire to minimize unwanted social interaction in her life. Our data also suggest an extension of the desires model, one that clarifies valued end states in terms of life themes (Csikszentmihalyi and Beattie 1979) and adds two middle-level constructs—life projects (Little 1989) and current concerns (Klinger 1987)—as interim stages in the goal-oriented model that connects consumer and product (cf. Fournier 1998; Mick and Buhl 1992). Together these constructs expand the desires model from one that emphasizes mindfulness and motivational stability to one that incorporates less conscious

operations and motivational pliancy. This extension is supported by recent work in media psychology and sociology that stresses various higher-order goals as shaping desires for product features and benefits (Lindlof 1992; Mangold 1997).

Consider Bob and Tina Jones (Case F), who purchased the household's first telephone answering machine. For Tina, a Korean national, the machine fulfilled a prominent life theme based on harmonizing family and other interpersonal relations. Tina's present life projects involving motherhood and career were also fostered by machine ownership, as were related current concerns such as knowing when her daughters needed a ride home from school and securing a nursing internship. Thus, the satisfaction-as-pleasure that Tina developed over the first six months of ownership accrued largely from her ability to fulfill desires (e.g., being available for family and friends) that flowed from her dominant life theme, as injected into key life projects and concerns. Her husband Bob derived his satisfaction-as-pleasure from similar connections to higher-order goals. Specifically, by allowing Bob to shape his daughter's social agenda through the machine's call-screening and deletion features, the machine delivered squarely on his fatherhood project as linked to a life theme reflecting authoritarian control. As he admitted,

Oh, does she hate that! Finding out that someone had called and knowing that I had erased the message without telling her. She hates that machine, but I think it's great myself. It's for her own good. Some of those friends of hers just aren't the kind of people she should be associating with anyway. They're people I just don't agree with, and I told her that.

A related case involved a retired man 75 years of age and his first video camera. Sam's purchase was triggered by a lamentation that he could not recall what his father was like and did not want his children to experience similar regret. Sam recognized the urgency of his advancing age and moved with fervor into crafting a desired image of himself for the family record. Over the first weeks of ownership, Sam compiled "a master tape" containing footage of his house, his coin collection, a photograph of a favorite boat he once owned, and a family birthday celebration. Over the next several months, Sam added to and edited this tape, using the time to perfect his knowledge of the camera and its capabilities. ("I can't believe what that thing can do! I can zoom in on a penny and get the date so sharp.... I have been playing with the fade and it's really useful.... I learned I can set it on the tripod and catch the deer when they come through.") By six months, Sam's satisfaction-as-novelty had settled into contentment ("I like the model, I like the camera. I'd buy the same one again if I had to make the choice over."). Evolving through these modes, Sam's satisfaction arose from the provision of desired benefits that emanated from his age-graded life project as patriarch and a current concern as the family's self-appointed historian.

The experience-based norms model. The experience-based norms model suggests that a consumer will be satisfied to the extent that his or her comparison level (CL) is met or exceeded (Woodruff, Cadotte, and Jenkins 1983). The CL is conceptualized as product rewards received minus costs incurred in acquisition and use. Outcomes below

CL lead to dissatisfaction, whereas those at or above CL lead to satisfaction. The CL standard is determined by the consumer's prior experiences, the known experiences of others, or outcomes promised by marketers.

Jack's story about computer upgrades (Case D) evinced this model insofar as the perceived costs of updating the computer system did not meet Jack's hope for sufficiently faster computing time, thereby causing dissatisfaction as his outcomes fell short of his prior productivity, a normed standard as per the model. The CL model also appeared in another informant's story about a juicer machine:

Ed: My wife's sister got a juicer and she was so excited. Lent us her machine to try for ourselves. My wife filled the house with food. I mean she had pears and strawberries and carrots. She was going to juice all this stuff up. It was neat for about a day and a half, and after that, it was a pain in the neck to clean it, you know, because you use it and then you got to take it apart and dump it all, the juices, the pulp.... It was nice, but it was a pain to clean ... probably used it three times the first day, twice the second day and that was it.... And I said, "Well, what do you think, you think you want one?" And she said, the first day was "Yes," the second day was "I don't know." And I said, "It's kind of a pain, isn't it, to clean it all the time?" And she said "Yeah." So we returned it.

As the experience-based norms model suggests, Ed's wife's dissatisfaction (a mode of negative surprise) developed as costs rose relative to rewards, and her outcomes fell short of her comparison standard, that is, the convenience benefits she felt she should have received on the basis of her sister's recommendation.

Some cases exhibiting the experience-based norms model did not reflect the CL standard, however. Consider Case E. As Liz's product metaphor suggests (the dishwasher is "better than a daughter") and as the emergency bathtub solution reveals, Liz's product satisfaction resembles a form of dependency, as defined within Thibaut and Kelley's (1959) interdependence framework. That is, an alternative form of the experience-based norms model is implied here: one rooted not in CL but in CL_{alt} , which is defined as the lowest level of acceptable outcomes in view of available alternatives. The degree to which present outcomes exceed CL_{alt} determines the extent of dependency on the current source of outcomes, and the satisfaction associated with their receipt. Liz's CL_{alt} —washing dishes by hand—was positioned so far below the outcomes she was accustomed to with her dishwasher that she was driven to simulate the dishwasher with her shower when the washer broke down. Other stories of technology breakdowns proved valuable in inducting the dependency model of satisfaction based on CL_{alt} . Interestingly, although satisfaction researchers in marketing have previously ignored CL_{alt} , it is the dominant standard for satisfaction models in the marital domain (Rusbult 1980). CL_{alt} also appears as an implicit standard in media studies of consumers' experiences with television breakdowns (Winick 1988).

It might seem unsound to view dependency in the context of satisfaction, especially because the notion typically has pejorative connotations in Western cultures that highly value independence (Neki 1976). Blankfield (1987) argues,

however, that dependency is necessary to physical and mental adjustment and therefore has positive implications. Clearly, Liz and several other informants revered rather than bemoaned the dependencies they developed on their products (e.g., "I'm hooked, can't imagine life without it," claims Bob of his answering machine in Case F; see also Trudy and her computer in Case G). Our informant Carter summarized the CL_{alt} model of positive dependency this way: "If something becomes so familiar to you that you absorb it into your life without constantly recognizing it every day, it probably indicates *the high level of success of that product in your life.... If it's not there, you'll miss it!*" (our emphasis).

Dependency was also experienced as negative, however, as several of our pilot car-repair interviews revealed. As one informant spelled it out: "Unfortunately, my life is arranged around a car and I can't live without it, so I am stuck. I'm here now, in this shop, waiting for my car, and I can't leave until it is done. In the meantime, my life comes to a screeching halt. I hate that." This same dissatisfaction process applied to other regrettable necessities discussed by informants, including televisions and computers. Thus, in terms of the CL_{alt} model, although present outcomes from product ownership can far exceed available alternatives, some consumers may feel trapped by this dependency and experience dissatisfaction accordingly.

Modes of satisfaction. As intimated previously, several of Oliver's (1989) satisfaction modes were evident in the data, including satisfaction-as-contentment (Bonita, Case C), satisfaction-as-pleasure (Ben, Bob, and Tina; Cases A and F), and dissatisfaction-as-surprise (Ed's wife and her juicer). A new variant of the novelty mode was also revealed, as described in the case of Sam's satisfaction with his video camera. His was a novelty that was based not on expecting the unexpected, as Oliver (1989) describes it, but on the serendipitous discovery of benefits over time. Kris (Case H) illustrates the development of this same variant of satisfaction-as-novelty in that her excitement accompanies virgin experience as well and is not derived from purposive exposure to a strange consumption setting for the sake of extracting the benefits therein (per Oliver 1989). This form of satisfaction-as-novelty is likely endemic to owning new technologies, especially discontinuous innovations.

We also noted a different type of satisfaction-as-relief than Oliver (1989) initially proposed. As mentioned previously, Bonita (Case C) felt relief from the disconfirmation of anxieties regarding her new answering machine. Her satisfaction-as-relief, however, was not predicated on the product removing an aversive preexisting condition, as when aspirin remedies a headache (per Oliver 1989). This conception of relief involves expectations for positive product benefits, and in Bonita's case, expectations were negatively valenced. A similar situation held true for Paul and his car Matilda. In both cases, relief ensued from what the product did *not* do. This variant of satisfaction-as-relief has also been uncovered in studies of consumers' early adoption experiences with their videocassette recorders (Hirsch 1992), which suggests that it may be widespread in the context of technologies that are routinely feared or at least suspiciously perceived (Fortin et al. 1995; Weil and Rosen 1997).

Five new satisfaction modes also were identified in the data, moving classification schemes in the direction of augmentation and refined complexity, rather than simplification (per Oliver 1996). The first is satisfaction-as-awe. This hedonically intense and culturally significant satisfaction mode was evident in Hank's discussion about his bread maker (Case B). The word "simplicity," which Hank lighted on in describing why he is "so happy with his machine," lies at the heart of his satisfaction. As the novice or harried baker realizes, bread is anything but easy to make. The "sophisticated computerized operation" built into the bread machine was, for Hank, a striking "accomplishment of contemporary science." Here was a process in which the consumer "does nothing but load ingredients" and "marvel" as a "perfect loaf" is produced (his emphasis). The satisfaction mode implied here is not merely contentment, pleasure, novelty, or surprise. Hank's satisfaction is best interpreted as awe, which refers to "respect combined with a state of wonder" (*Oxford American Dictionary* 1980, p. 42). Because awe in this context springs from a long-standing cultural mythology of technology that is grounded in themes of progress and empowerment (Borgmann 1984), it may be an especially prevalent mode among consumers of many technologies.

The second and third newly identified modes relate to the dependency model of satisfaction posed previously. Liz's story (Case E) involving positive dependency on her dishwasher evinces a satisfaction mode that goes beyond simple contentment to trust, which represents "a confident belief in the reliability or strength of something" (*Oxford American Dictionary* 1980, p. 738). In cases of negative dependency, as reflected in consumers' car repair stories, dissatisfaction is manifest in a mode of chronic helplessness. More than elementary discontent, helplessness signifies the inability to take opposing action because alternatives are considered either unacceptable or unobtainable. Satisfaction-as-trust and dissatisfaction-as-helplessness also may be commonplace in that they reflect sensible human reactions to the inevitability of technological momentum in contemporary consumer cultures (Postman 1993).

A fourth satisfaction mode previously overlooked in the marketing literature is that of satisfaction-as-resignation, which involves "passive submission and unresisting acceptance of that which is imposed" (*American Heritage Dictionary of the English Language* 1978, p. 1106). It is interesting to compare resignation with the aforementioned mode of helplessness, both of which typically relate to unwelcome and unavoidable states of affairs. Whereas helplessness is tied to the dependency model of satisfaction and its CL_{alt} comparison standard, resignation is tied more directly to the long-standing model of ED. In this sense, resignation involves a process of declining product expectations and the subsequent confirmatory belief that performance has met this lowered hurdle (see parallel insights from Campbell, Converse, and Rodgers [1976] in the life satisfaction domain). From our data, consider Charlene, who won a home computer in a charity raffle. Charlene worked as an administrator for a museum, a job that left her "very knowledgeable about computer hardware and software." She had been contemplating the purchase of a home computer "for keeping track of the bills, connecting to the

office from home, word processing, and database access for the kids' school assignments." But, as Charlene explained, "I know how quickly technology advances and I was very wary about what to buy and when. And then we won this machine, a Tandy, so the decision became a moot point." When asked whether she was satisfied with her acquisition, Charlene hedged, "Yeah, I am satisfied. I mean, it is nowhere near as powerful as I would have wanted, it doesn't even have a modem and I'm not sure it can support the power I need. But it works. The kids like it, you can type letters on it. It's fine." Charlene's satisfaction mode is one of resignation insofar as she begrudgingly acquiesces to an inferior ownership condition. Pervasiveness of the resignation mode is suggested in the speed of technological product evolution (Dhebar 1996), which leaves many consumers with older-generation products that either cannot or will not be replaced.

The fifth mode, satisfaction-as-love, is encapsulated in Trudy's story of her new portable computer (Case G). Five facets of love (cf. Aron et al. 1991; Hendrick and Hendrick 1989) are incorporated in this extreme form of satisfaction: *passion* (e.g., Trudy admits feeling "a little high" whenever she uses her machine), *feelings of uniqueness* (Trudy "can't imagine any product [she] treasures more" than her machine), a *sense of caring* (Trudy dotes on her computer and expresses concern about its welfare, as when a child knocked it to the floor), *obsessive attachment* (Trudy has to have the laptop "with her all the time" and does not know what she would do without it), and *overlapping selves* (Trudy says, "This computer is me. It's kind of like a diary."). This multifarious satisfaction mode obviously goes far beyond unadorned contentment or pleasure to a point where the consumer attains a close, high-quality relationship with the product (cf. Fournier 1998). In its strong behavioral, emotional, and psychological foundations, satisfaction-as-love probably constitutes the most intense and profound satisfaction of all.

Emergent Anomalies of the CS Paradigm and Its Models

The lack or instability of comparison standards. The CS paradigm persistently has assumed that consumers have existing and stable standards to compare with product performance in deriving satisfaction judgments, despite occasional contrary findings (e.g., Churchill and Suprenant 1982; Oliver 1980; Tse and Wilton 1988). One of the most striking aspects of the satisfaction stories revealed by some of our informants was the violation of this fundamental assumption.

We refer first to the Joneses and their telephone answering machine (Case F). Previously we interpreted Bob's satisfaction in terms of an extended desires model, which allows for product-related desires that are latent and/or barely formed. Before his impulse purchase, Bob had few solid preconsumption expectations or desires because he never actively had considered bringing a telephone answering machine into the household. Yet Bob became the machine's main user, and a domineering one at that. His life theme of authoritarian control, his fatherhood life project, and his current concern over managing his youngest daughter's social

activities led him to realize product benefits (call screening and erasing) that were not apparent to him at purchase time. Because few if any predictive expectations existed, satisfaction was not derived from meeting or exceeding prepurchase standards. Rather, in support of Iacobucci, Grayson, and Ostrom's (1994) hypothesis that standards arise simultaneously with product ownership experiences, it was the spontaneous provision of benefits related to life themes, projects, and current concerns that led to Bob's satisfaction-as-pleasure mode.

Other informants expressed stories in which ingoing comparison standards existed but quickly dissolved. A dramatic example involves Kris (Case H), whose sole purpose for owning a caller ID device (to catch a harassing caller) dissipated immediately after purchase, rendering her preconsumption expectation and its potential confirmation irrelevant to felt satisfaction. Instead, Kris's satisfaction originated from both discovering and inventing new product benefits. Again, these benefits had their roots in salient life projects and current concerns, that is, Kris's tasks of becoming independent and forming meaningful social relationships. What Kris came to appreciate in her caller ID was its ability to facilitate these goals: specifically, to bring her closer to certain people and to take her away from others, while providing some youthful fun along the way. Thus, Kris's satisfaction-as-novelty derived from a process of product and benefit exploration, with key meanings thematized in her metaphor of the "game."

Ben's (Case A) case is parallel to Kris's in that situational life changes redirected the satisfaction process in unanticipated ways. Ben's ingoing need to capture calls offering him extra work hours evaporated when he accepted full-time employment just weeks after acquiring his machine. Moreover, by monitoring calls over time, Ben soon clarified his ambitious goals for managing his social life and ultimately abandoned the expectations he held for leisure planning, which loomed large at purchase time. In addition, Ben's girlfriend moved into his apartment a few weeks after product purchase, removing another expectation for cross-campus social planning from his agenda. Interestingly, although a priori expectations regarding social calls were tantamount to Ben's purchase decision, their dissolution appeared to have no effect on his resulting product satisfaction. By the end of the first six months, Ben was not using the device at all to capture calls as originally expected. Rather, he was screening calls so that he could study without interruptions, spend "quality time with my girlfriend," and actually avoid requests to work on his treasured days off. In this way, Ben derived an ironic but satisfying inversion of predicted product benefits by obstructing rather than facilitating communication with others, a circumstance that actually fortified the ownership experience for him and his girlfriend. ("It's great.... When my girlfriend and I are eating, or watching a movie, or spending quality time together, well, we just let it ring. She really likes that. We just sit there and smile.") As in other cases noted previously, benefits that were not part of Ben's initial comparison standards proved critical to his satisfaction, suggesting a principal limitation of the CS paradigm and its models.

The presence of simultaneous and sequential satisfaction models. Researchers within the CS paradigm often

compare one model with another—conceptually or empirically—to prove which is best at explaining and predicting satisfaction judgments. These efforts are consistent with Yi's (1990) call to develop a single, superior satisfaction model. Some of our cases, however, evinced different comparison standards *simultaneously*, suggesting concurrent, not competing, models. Again, consider Trudy (Case G). In describing her satisfaction, we can highlight evidence of the extended desires model by connecting the portability benefits of her new computer to current concerns and life projects (i.e., advancing her book writing project while also spending time with her children, which she accomplishes by taking the computer to the park). However, because Trudy explained to us that she knew about the portability benefit from reading articles and querying salespersons and friends, her comparison standards were also a form of experience-based norms. Similarly, Sam formed both experience-based norms and predictive expectations about the features and benefits of his new video camera from advertisements he mentioned to us at purchase time. He also harbored some half-irrational desires to halt his aging process by capturing his current life on film. In this sense, Sam's satisfaction reflected a swirl of confirmations related to several types of comparison standards. Thus, as Iacobucci, Grayson, and Ostrom (1994) suspected and as a few empirical studies have begun to find (Spreng, MacKenzie, and Olshavsky 1996), more than one comparison standard may be operative in determining satisfaction at any given time.

Moreover, we found evidence for *sequential* satisfaction models *across time*. Consider the cases implicating the CL_{alt} experience-based norms model. Because dependency is a condition that reflects habituation over time, typically these cases fit other satisfaction models in early stages of product ownership. Liz's (E) and Trudy's (G) cases, for example, first evinced the experience-based norms model (CL) and the extended desires model, respectively, with the dependency model (CL_{alt}) becoming increasingly prominent in both cases. Other cases exhibited model shifts brought on by changing life circumstances or situational demands, as with Ben (Case A), whose satisfaction evolved from one predicated on the confirmation of feature expectations to the discovery of unanticipated benefits.

Our data provide evidence for the dynamism of satisfaction modes as well. Bonita's case (C), for example, suggested a passage from relief to contentment in the opening months of product ownership, whereas Sam's case demonstrated contentment evolving after a novelty phase. The car repair interviews illustrate evolution of modes as well, suggesting that consumer displeasure, accompanied by an inability to disengage ownership from regrettable necessities, can grow into helplessness or resignation over time. Interestingly, the progression of satisfaction modes was not always linear. Consumers such as Paul, with his fickle car Matilda, may cycle perpetually from relief and contentment to frustration and anger as their technologies fluctuate between operation and breakdown. This emotional roller coaster is an undeniably realistic and complicated dimension of satisfaction that has not been considered in prior theory and analysis.

The social dimension of satisfaction. The final two anomalies we unveiled also involve oversights within the

dominant paradigm for what emerge as vital and distinctive elements of satisfaction. The first involves the frequently social character of satisfaction, a finding that contrasts sharply with the conventional framing of satisfaction as an isolated, individualized phenomenon. For example, Ben's (Case A) satisfaction with his answering machine at the six-month mark was as much a function of his live-in girlfriend's satisfaction (who revered the machine's ability to block unwanted communications during the couple's time together) as it was a function of meeting his own evolving comparison standards. The social dimension manifested itself beyond the simple consideration of others' stated (dis)satisfactions with the product, however. More subtly, satisfaction sometimes accrued from the negotiated integration of the product into consumers' social lives, with consequences for family structure and processes—including solidarity, power, and the uses of time and space—driving product satisfactions. Bob's (Case F) daughter's dissatisfaction with the family's answering machine ("She hates it") can be understood in this light, as it derived in large part from her father's success in governing her social life.

Consider Penny as well, who told of her satisfaction with the family's stereo system. Although she openly described the quality of the speakers and the range of stations the receiver could pull, Penny's satisfaction seemed more a function of the system's ability to (1) soothe tensions in the home ("When I put on the oldies music, it just makes everything all better somehow"), (2) guarantee organized time for family interactions ("We listen to the top 40 countdown every Sunday night—that's our thing"), and (3) afford a common basis on which those in the household could relate ("I love it when we play the country music and the whole family does line dances. That's just the one thing that we all do together"). Undoubtedly, the family interactions facilitated by the stereo system determined Penny's product satisfaction to a remarkable degree. In turn, the product satisfaction she felt played an effective role in creating and preserving the family relations that gave vital meaning and satisfaction to her life. In this sense, Penny's product satisfaction can be fully appreciated only when viewed in terms of the wider embedding context of the lifestyle and family milieu within which her satisfaction ensues.

Studies of media reception and computing in the home have long stressed that product use (and, thereby, satisfaction) occurs in a social setting wherein consumption and interpersonal interactions mutually influence and shape the other (Brodie and Stoneman 1983; Bryce 1987; Lindlof 1992; Moores 1993a; Morley 1986; Silverstone and Hirsch 1992; Spigel 1990). That these studies consistently have implicated the social dimension of satisfaction provides convincing evidence of the weight and robustness of this insight.

Omitted meanings. Research in the CS tradition also typically has ignored the culturally and individually constituted meanings that we found tantamount to understanding consumer satisfaction in daily life. Oliver (1989, 1996) mentions meaning in developing the notion of satisfaction modes to acknowledge the varied product experiences through which satisfaction derives, but marketing academics hardly have taken notice (for an exception, see Arnould and Price 1993). Interestingly, life satisfaction researchers

have resonated to this theme (e.g., Campbell, Converse, and Rodgers 1976), showing that similar satisfactions, according to confirmed expectations, can be quite different in their semiotic roots.

Consider again the Jones's satisfactions with their answering machine (Case F). Although Bob and Tina manifested identical satisfaction modes (pleasure) and models (desires congruency), their product meanings were virtually opposite, rendering their satisfactions fundamentally different as well. For Tina, the machine was a mechanism for enhancing family harmony. It substituted, in part, for the stay-at-home mother she was not, assuaging the conflict she felt in pursuing a career outside the home. For Bob, the machine served as a tool for paternal dominance, marked hyper-symbolically by the drawing of a skull and crossbones he pinned as a warning above the machine. To equate these cases because of the satisfaction model and mode they share is to ignore major dissimilarities based on the meanings underlying their respective satisfactions.

Meanings of coinciding importance led also to a fuller appreciation of Keith's satisfaction with his portable computer. Although the computer performed as expected by facilitating detailed customer bids, there was much more than confirmed expectations for convenience benefits behind the salesman's satisfaction. As the following passage reveals, Keith used his computer not only for its obvious utilitarian benefits but also to construct an ideal definition of his professional self. The meanings underlying his satisfaction reflect prominent American cultural myths of technology related to human perfection, intelligence, and skill (Borgmann 1984).

What's the advantage? The advantage [of having the computer in the field] is that some of the other [salespeople] the customers meet are definitely the blue-jeans-and-work-shirt, need-a-shave, pencil-behind-the-ear types who come in, scratch their heads, and say, "We'll mail you a quote in three days" and then they leave.... I almost feel sorry for the guy who goes in behind me because, you know, I hate to say I'm cocky or anything else, I'm just real happy that I'm trained in how to do this right.... You know, when I leave, they have a full-blown quoted proposal and energy cost analyses comparing three different systems to their current system, and the next guy walks in with a pencil behind his ear ... I am a consummate heating and air conditioning professional.

Revelatory metaphors used by informants provided significant clues to comprehending sociocultural and personal product meanings and their roles in satisfaction. Among these was the metaphor of the "security blanket," which revealed Trudy's (Case G) loving attachment to her portable computer. The "plant" metaphor underscored Bonita's (Case C) reluctant acceptance of responsibility for monitoring the operation of her answering machine. Tina's (Case F) reference to her answering machine as "a mother that stays home for her children" revealed a nostalgic and perhaps guilty lamentation, with the machine serving as her technological double. Sam called his video camera a "new toy," an interesting symbolic metaphor for a 75-year old with a current concern to freeze his age on film and perhaps restrain his fleeting vitality. These metaphorical meanings, and others that arose from observations we made about product use and placement (e.g., Bob places his answering machine in his

private bedroom to control others' access to it), suggest that product meanings are highly varied but quintessential factors in consumer satisfaction.

Toward a New Satisfaction Paradigm: Balancing Paradoxes

Our data also serve to induct a new satisfaction paradigm that is radically different from the CS tradition. This paradigm stems from the sociocultural character of owning and using technologies, rather than the mental matching of features and benefits against a priori comparison standards. We call it the *balancing paradigm* because it involves consumers' ongoing attempts to manage the paradoxical qualities of technological products in postmodern life.

In previous work (1998), we identify eight central paradoxes of technology, each framed by opposing conditions that characterize the conflicted experience of technology. Specifically, technology (1) facilitates freedom and invites enslavement, (2) facilitates control and creates chaos, (3) solves problems and creates others, (4) saves time and uses time, (5) leads people to feel intelligent and makes them feel stupid, (6) often seems new but is quickly obsolete, (7) assimilates and isolates people, and (8) engages and disengages human involvement in various activities. According to some observers, paradoxes are inevitable and endemic to contemporary societies generally, and to technology specifically, and their fixed equilibrium is unattainable (Handy 1994; Winner 1994). Hence, the only viable response to paradoxes is acceptance and coping.

In the balancing paradigm of satisfaction, the concurrent and contradictory poles of the technology paradoxes operate as consumption-related tensions requiring vigilance and strategic action on the part of the consumer. From this perspective, satisfaction becomes a function of the success of continuing efforts to keep paradoxes in relative balance. Our previous work (1998) identifies a broad range of coping strategies dedicated to this end, from purposefully delaying acquisition or buying an elementary model, to accommodating or partnering with the product. Research in other fields also implies that successful coping with technology paradoxes yields greater satisfaction. Umble (1992), for example, argues that restrictive rules regarding telephone usage by the Amish have helped them deal with a salient freedom/enslavement paradox, thereby granting satisfaction with this technology in their daily lives. Spigel (1990) also shows that the effective management of paradoxes identified in the television ownership experience (e.g., freedom/enslavement, isolation/assimilation) reduces family tensions and increases product satisfactions. Additional research on automobiles, televisions, videocassette recorders, and computers suggests that these technologies can both engage and disengage people in their efforts to interact with the world around them and that satisfaction with these products is, at least in part, dependent on the ability to cope with this basic paradox (Hirsch 1992; Langer and Piper 1988; Stern and Kipnis 1993; see also Gutek and Winter 1990 on job satisfaction).

From our data, the case of Wally and Sally Hilson illustrates this alternate paradigm. The Hilsons were concerned about technologies in general, noting several of the negative poles of the paradoxes mentioned previously (i.e.,

"You become a slave to the technologies you buy," "They create nothing but problems"). The Hilsons particularly avoided the purchase of a telephone answering machine because they believed it would come to dominate their lives in particular ways, despite its apparent benefits of freedom and control. However, accumulating situational demands pushed the Hilsons to acquire an answering machine. Sally explains:

We were forced to get an answering machine when business took us out of town for an extended period. There was just no other option. I was expecting calls from my book publisher, and I simply could not miss those. And Wally was awaiting calls from a prospective employer. We were trapped into it, but the answering machine seemed the perfect solution to our dilemma.

The Hilsons cleverly decided to place their answering machine in a separate studio behind their home, effectively distancing themselves from the product and mitigating its negative repercussions on the perceived quality of their lives ("we promised to activate it only when we left on trips"). When asked in the second interview about the ownership experience, Sally declared: "We're very happy with it." We attribute the Hilsons's satisfaction at the second interview to their perceived success in balancing the paradoxes salient in their technology ownership experience through creative strategies for product placement and use. Interestingly, at interview 3, Sally was much less enamored of her possession: "When we got back from our last trip there were so many messages on the machine. It was stressful to think that we were obligated to return all those calls." Reflecting the dynamism fundamental to the balancing paradigm, satisfaction ebbed and flowed according to changing life conditions and further product interactions, with satisfaction peaking as paradoxes temporarily were steadied and quality of life maintained.

Kris's experience with her caller ID device (Case H) provides another example of the balancing paradigm at work. To recall, Kris eventually attained satisfaction with her caller ID that was quite removed from the ambivalent feelings that framed her ingoing, but soon-dissipated, product expectations. The data suggest that Kris achieved her satisfaction, in part, by coping with the paradoxes that were elemental to her experiences with the machine. The isolation/assimilation paradox was especially salient in Kris's initial thinking. She was so concerned about offending friends with the call-screening device ("How will others feel when they know I'm screening their number, deciding whether to pick up or not?"), that she did not tell anyone about her purchase.⁵ At first she hid the ID box in a drawer near the telephone, out of public view. Before long, however, the machine was removed from this secretive location to make it more accessible for monitoring. To her surprise, Kris found that, though some friends noted the unusual device on her table, most did not appear to care what it was. Some asked basic questions, heard a legitimate defense, and accepted the product straightforwardly. "I tell them it's just like an answering machine really," Kris reported during in-

⁵The paradox of isolation/assimilation as related to anxieties over public product display also is implicated in Moores's (1993b) research on the adoption of satellite television technology.

terview 2, "but this is better because you don't hover over the machine listening to the voice of the person who's calling and then picking up with some lame excuse about how you were in the bathroom when the phone rang." Most interesting, Kris began to engage in guessing games with her roommate about the identity of incoming calls and the geographic regions referenced by specific area codes. These playful activities added a new sense of joviality to the product relationship that counterbalanced worries about embarrassment and isolation with positive feelings of assimilation and integration.

Kris's anxiety about technology engaging and/or disengaging the user also was negotiated successfully through product usage. Kris lamented about people's reliance on technology many times during the interviews, noting that "we sacrifice skills that make us human through our interface with machines." Through ritualistic game playing and memory quizzes, Kris learned how the machine could sharpen rather than dull her cognitive senses, a realization that left her feeling empowered, not compromised, by a growing dependency on the product. Through these simple strategies, Kris successfully managed another salient paradox, making it possible for satisfaction to accrue.

The paradoxes of technology reflected in the balancing paradigm have been expressed through various media for nearly two centuries (e.g., Shelley's 1818 novel *Frankenstein* and films such as *Gremlins* and *2001: A Space Odyssey*). Today, the manifestation of technology paradoxes is also evident in reports that many consumers suffer from technophobia and "technostress" (Weil and Rosen 1997). Hence, the balancing paradigm of satisfaction may be widespread, especially among certain population segments (Smith and Clurman 1997) and for discontinuous innovations in which the negative sides of paradox are especially notable (Dhebar 1996).

In summary, the paradox perspective highlights the indeterminacy and uneasiness that often accompany consumers' interactions with products, thereby emphasizing the emotional and dynamic qualities of the satisfaction experience. The perspective also readily suggests the notion that feelings of (im)balance may accumulate across the consumer's entire portfolio of possessions, illustrating how product satisfaction can blend into and become a base element of life satisfaction, the latter involving the broader context of the consumer culture with which the person interacts.

Discussion

Contributions of this Research

Our project examined consumer satisfaction through phenomenological and longitudinal inquiry in the technology domain. Although the data provide evidence of the CS paradigm and most of its models and indicate operation of several of Oliver's (1989) satisfaction modes, our findings also augment existing theory in several ways: (1) an inverted form of the ED model in which the disconfirmation of expectations promotes satisfaction; (2) an extended version of the desires model, which includes the life themes, life projects, and current concerns that propel product desires; (3) the induction of a new experience-based norms standard

(CL_{alt}) that underpins a unique dependency model of satisfaction; (4) expanded conceptualizations of the relief and novelty satisfaction modes; and (5) identification of new satisfaction modes, including awe, trust, helplessness, resignation, and love.

Perhaps most noteworthy, by investigating satisfaction through consumers' firsthand narratives, formidable anomalies of the CS paradigm also emerged. These findings lead to five main conclusions: (1) consumer product satisfaction is an *active, dynamic process*; (2) the satisfaction process often has a strong *social dimension*; (3) *meaning and emotion* are integral components of satisfaction; (4) the satisfaction process is *context-dependent* and *contingent*, encompassing multiple paradigms, models, and modes; and finally, (5) product satisfaction is invariably intertwined with *life satisfaction* and the quality of life itself. These observations challenge long-running assumptions in the study of satisfaction within marketing, providing insights that clarify not only the character of consumer product satisfaction but its motivations and causes as well. Several of these ideas are concordant with research on consumer technologies outside of marketing which, though rarely addressing satisfaction theory specifically, clearly implicate it (e.g., Lindlof 1987, 1992; Livingstone 1990; Moores 1993a; Morley 1986; Silverstone and Hirsch 1992; Umble 1992; Winick 1988).

Satisfaction as an active, dynamic process. The CS paradigm consistently has portrayed satisfaction as a steady evaluative state arising from a lockstep sequence of stages that resembles something akin to the operation of a well-structured computer program. This depiction contrasts sharply with the constructive, malleable, evolutionary, and even circuitous process of satisfaction that we uncovered. In cases in which preconsumption standards existed, their roles in determining satisfaction often evaporated in the face of new situational opportunities or constraints. Rarely did comparison standards and satisfaction models relevant in the early days of product ownership remain constant as the usage experience evolved. In cases in which comparison standards were weak or nonexistent at purchase time—a common precondition in the adoption of innovative technologies—satisfaction unfolded as a continuing interactive negotiation between consumer and product that *actually precipitated* the instantiation of expectations and norms, the realization or creation of desires, and the discovery of product features and benefits. These insights cohere with a growing emphasis on the proactive consumer (Deighton 1992; Fournier 1998; Hirsch 1992; Lindlof 1992; Stern and Kipnis 1993; Thompson, Pollio, and Locander 1994), one who is depicted here as a necessary and often lively participant in the satisfaction process over time. The findings also support and extend the process view advocated in Price, Arnould, and Tierney's (1995) study, which reveals marketers as active participants in the evolution of customer satisfaction in the service domain.

The emergence of the paradox balancing paradigm provides particular support for this dynamic view. It specifically portrays consumer satisfaction in terms of prolonged product *usage*, focusing on consumption experiences in the unpredictable course of daily living. The CS paradigm, in contrast, has been restricted to the *buying* condition and the

immediate evaluative outcome of that transaction. Whereas the latter perspective focuses exclusively on the state of being satisfied with one's recent purchase, the former involves the process of developing and maintaining satisfaction through various psychological and behavioral strategies over time—a broadened question of theoretical and practical concern.

These insights call into question the continued dominance of the CS paradigm, particularly its strong transaction-specific emphasis. They suggest that transaction-specific assessments of satisfaction are likely to be incomplete, if not misleading and unreliable. Indeed, if satisfaction is a pivotal facet of a cumulative and often nonlinear chronology of consumer-product interactions, restricting theory and measurement to the immediate postpurchase setting prematurely and incorrectly deprioritizes the ownership horizon through which satisfaction necessarily evolves. Substantial advancements in satisfaction research are less likely to occur as long as narrow and potentially spurious conceptual and operational boundaries are placed on the active, dynamic process highlighted here. Further research must give higher priority to collecting data longitudinally and in situ, with ample opportunities to chart the many paths of satisfaction as they unfold.

The social dimension of satisfaction. Whereas the CS paradigm and its models generally frame satisfaction as a solipsistic psychological state, our data expose it as a highly social phenomenon. Our findings suggest that the satisfactions of other relevant household members often contribute to the individual consumer's satisfaction. Moreover, they reveal higher-order social effects that accrue after the product is incorporated into the household, demonstrating how these repercussions and negotiations themselves influence, and are influenced by, the (dis)satisfactions consumers feel. More than simply touching on a different level of analysis in the study of product satisfaction, this social dimension reframes its understanding altogether, from one emphasizing secluded mentalism to one involving collective interactions among all persons directly and indirectly affected by the product. In this sense, the social character of product satisfactions also implicates issues of life satisfaction, a point discussed further in the section "Connecting Product Satisfaction with Life Satisfaction."

The integral roles of meaning and emotion in consumers' satisfactions. Our research also indicates that the CS paradigm and its models regrettably have ignored or understated the roles of meaning and emotion in satisfaction. An overemphasis on preconsumption standards, feedback from initial product performance, and the formulaic comparison of the two has depicted satisfaction as a cold, cognitive, and meaning-deficient phenomenon. Alternatively, our cases reveal satisfaction as technical and artful, cognitive and affective, purposeful and spontaneous, and interlaced with meanings of many kinds. Our data suggest a contrarian view that it was not comparison standards matched against performance perceptions that mattered most in our informants' satisfactions. Rather, what carried more weight were the meanings and emotions that particularized consumers' usage experiences. Many of the modifications we proposed to existing theory—the inclusion of life themes and life projects, new affective modes, and felt paradoxes—all are as-

sociated distinctly with the cultural and personal contexts in which technology ownership occurs. Collectively, these modifications document the unassailable importance of meanings and emotions in consumer satisfaction—an observation that similarly has reshaped theories of life satisfaction (Campbell, Converse, and Rodgers 1976) and consumption in fields outside the marketing domain (Lindlof 1987, 1992; Livingstone 1990; Moores 1993a; Silverstone and Hirsch 1992).

The metaphors invoked when informants referred to their possessions (e.g., slave, toy, mother) provided an indispensable key to unlocking the meanings of consumers' satisfactions (see also Thompson, Pollio, and Locander 1994). By overlooking meaning, much prior research on satisfaction has produced only a faint resemblance to the culturally constituted and personally driven consumer experiences we observed. That is, satisfaction has not only structure but content as well. It seems inarguable that concerted attention to the product and consumption meanings that predate or arise during ownership leads to a deeper, more refined understanding of the process of satisfaction. Put more bluntly from phenomenological and semiotic viewpoints, meaningless satisfaction is no satisfaction at all.

Our data also encourage an expansion of the role of emotions in satisfaction theory, beyond their usual treatment as appendages to a rational calculus of response. Indeed, emotions were shown to capture the defining tone of a consumer's satisfaction at a given point in time. The idea that satisfaction has different affective modes or instantiations (Oliver 1989) is, in our view, an astute insight on the centrality of emotions and the varieties of satisfaction. More modes are likely to exist, awaiting specification through further research.

Toward a contingency theory of satisfaction. In toto, our empirical findings support and further specify an expanded view of satisfaction that others variously have espoused in prior conceptual work (Deighton 1992; Iacobucci, Grayson, and Ostrom 1994; Tse, Nicosia, and Wilton 1990). This view advocates satisfaction as a context-dependent process consisting of a multi-model, multi-modal blend of motivations, cognitions, emotions, and meanings, embedded in sociocultural settings, that transforms during progressive and regressive consumer-product interactions. It is a perspective open to, and embracing of, alternate paths of satisfaction, including those that do not rely on the preeminence or even pre-existence of standards or the associated mathematics of standards versus performance in the predictive analysis of satisfaction (see also Fornell 1992).

One ramification of this more holistic view is that it disputes the persistent practice of conducting confirmatory tests of lone satisfaction models or comparative tests of competing models, whose goal is the establishment of a single, preferred explanatory model across products, people, and situations. This criticism of marketing satisfaction research has been foreshadowed in the life satisfaction (Michalos 1980) and job satisfaction (Hamner and Harnett 1974) domains, in which multiple comparison standards have been documented and accepted. The more liberal view of consumer satisfaction proposed here underscores the need for a flexible contingency approach that identifies a

range of satisfaction models (some based on comparison standards, others not) and then isolates the variables that serve as boundary conditions for determining when a given model will or will not operate. Spreng, MacKenzie, and Olshavsky (1996) tested a model incorporating both desires and expectations and, in discussing their findings, proposed conditions in which desires may supersede expectations in influencing satisfaction. Our findings endorse this valuable direction by pointing to a fuller range of paradigms and models that must be accommodated and a longer time period across which the various models should be examined.

Detailing a full-fledged contingency theory of satisfaction is beyond the scope of our study and this article. For illustration, however, we can point to a few moderating factors suggested in our data, with the hope that other researchers can advance these ideas further. Consumer expertise, an individual-difference factor, and the circumstance of product acquisition, a situational factor, both may influence the engagement of the ED model versus the desires model. In cases of low consumer expertise or when products are received as unexpected gifts, our data suggest that satisfaction will emerge from a muddling-through, trial-and-error process that leads to the discovery of usage benefits and disbenefits. Thereby, the desires model is indicated, as it stems considerably from preexisting motivational factors (e.g., life themes) that are capable of patterning interpretations and actions during ambiguous or first-time events (cf. Mick and Buhl 1992). In contrast, the ED model may be more likely among consumers with high levels of expertise or when acquisition has been well planned, because both factors imply well-formed predictions about features and benefits. Certain satisfaction modes also may be more prevalent in cases of expected versus unexpected product acquisition, with the latter more likely to encourage satisfaction as novelty, surprise, or resignation.

Another insight into contingency factors comes from what our data failed to uncover—a form of negative or “missing case” analysis—namely, the equity model in the CS paradigm. The equity model is based implicitly on the consumer's opportunity to interact with a marketing agent so that input-output ratios (costs/benefits) between the consumer and the agent's firm can be compared. This comparison leads to a judgment about the fairness of the exchange, from which satisfaction in the equity model is determined. In our project, consumers reported limited encounters with marketing agents (including retail assistants), perhaps explaining why equity themes did not appear in their stories. That is, without sufficient interaction between consumer and marketing agent, the equity model may not be germane. This suggests that the equity model may be more likely in the purchase of services, as compared with products, a contingency hypothesis that seems to explain why Tse and Wilton (1988) found little support for the equity model in their study of record players, whereas Oliver and Swan (1989) did in their study involving automobile sales personnel. Absence of equity issues in our data also seem to challenge a contingency hypothesis recently advanced by Smith, Bolton, and Wagner (1998), who propose that the equity standard may be preeminent in the context of product failures. In the variety of product breakdown stories that we

collected, the new CL_{alt} model involving issues of product dependency, not the equity model, emerged as the dominant interpretation of the satisfaction process.

Connecting product satisfaction with life satisfaction. Our data also offer glimpses into other concepts that exist in nonrecursive, mutually supporting relationships with product satisfaction. In several of our cases, satisfaction with technological products was accompanied by the fulfillment of motivations central to life satisfaction, notably self-esteem, self-efficacy, and self-actualization (Ryff 1989). In contrast, dissatisfaction occasionally was accompanied by heightened tensions in human relations, frustrations and fears in the product ownership experience, new responsibilities amid overloaded calendars, the depletion of human abilities, and the encouragement of mythic, unrealizable goals—all of which are motifs of technology that populate works outside the marketing discipline (e.g., Borgmann 1984; Moores 1993a, b; Morley 1986; Norman 1993; Spigel 1990). These linkages clearly point to something greater than satisfaction with one's purchases: They involve the overall quality of life and the role that product interactions can play in achieving, maintaining, or diminishing it.

Although the tie between consumer satisfaction and quality of life has been presumed readily (Oliver 1996; Yi 1990), it has received virtually no theoretical or empirical attention in marketing (for an exception, see Neergaard and Venkatesh 1989). This connection, however, is fundamental to our positing the paradox balancing paradigm. Extrapolating from social psychological research (e.g., Emmons and King 1988; Holahan and Moos 1987), the inability or refusal to cope with product paradoxes is likely to intensify the stress that paradoxes precipitate. If so, and considered across multiple possessions, the feelings of security and contentment essential to life satisfaction may be compromised substantially. As Winner (1994, p. 194) summarizes this impact, "The dreams of technology have been inevitably frustrated. As we fill life's every niche with high-tech gadgetry, we gradually whittle away those restful places where genuine satisfaction is nurtured."

The linkage between product satisfaction and quality of life also was implicated in the extended desires model we proposed, building on research in social psychology that demonstrates a relationship between the fulfillment of personal projects and satisfaction with life (Campbell 1980; Palys and Little 1983). It also is implied in our findings involving the social dimension of consumer satisfaction. The marketing field's past focus on satisfaction as an individual-level, segregated phenomenon has obscured the recognition that product satisfactions affect family relations and socialization processes, which, in turn, highly influence satisfaction with life (Campbell, Converse, and Rodgers 1976; Michalos 1980).

Interestingly, outside of marketing, researchers of life satisfaction have expressed only limited interest in consumer-product interactions as a source of happiness or well-being. The state of this theorizing is captured in the prevailing hypothesis that increased ownership of material possessions leads to greater satisfaction with life (Campbell 1980). Similarly, marketing researchers interested in life satisfaction and quality of life (e.g., Samli 1987; Sirgy 1996)

seldom have related these ideas to product satisfaction, focusing instead on macro issues involving marketing ethics and public policy concerns (e.g., advertising to children). Overall, it seems safe to assume that consumers derive (dis)satisfaction from the totality of their engagements in the world of consumer goods and that this gestalt impinges on something greater than the material aspects of well-being. Further research is needed to understand the hierarchy of satisfaction responses that extends upward from concrete products to the more abstract dimensions of life and the role of marketing in affecting that hierarchy at both individual and social levels.

Managerial Implications

Our research provides direction for several areas of marketing practice. First, our findings recommend refinements in the way firms measure satisfaction and track it over time. If satisfaction is more evolutionary and more socially oriented than previously believed, if multiple satisfaction models and modes exist, and if meaning and emotion are as elemental as we have suggested, an assessment of satisfaction that is based on feature-oriented rating scales will provide only meager information at best. These scores reveal little of how or why satisfactions come about, their developmental direction, their emotional tenor, or the significance of the product satisfaction to the consumers involved. Indeed, two consumers each circling the number five on a ten-point satisfaction scale may have much less equivalent satisfactions than formerly presumed. Moreover, if these two consumers, and others, are part of the same household, their individual scores tell nothing about the configuration and interdependencies of (dis)satisfactions in the family. As a result, managers must consider more advanced satisfaction analyses involving sociocognitive mapping (see Ward and Reingen 1990) and the supplementation of rating-scale information with substantial qualitative data, lest their insights be impoverished by the belief that consumer satisfaction is solely a matter of quantity, absent of quality. Longitudinal investigations, in situ, particularly are implicated to reveal satisfaction as the dynamic, and often interpersonal, process our research accentuates (see also Arnould and Price 1993; Price, Arnould, and Tierney 1995).

Second, the observation that there are multiple models within the satisfaction process, and that these are moderated by product, person, and situational factors, points to the opportunity for market segmentation along these lines. Communication strategies can be tailored carefully to manage different segments' satisfaction models and modes, resulting in messages that are more relevant to the goals at hand. For example, the facilitation of life projects can be emphasized with respect to purchases made during life stage transitions, whereas paradox balancing strategies may be suggested tactfully in the promotional messages and product manuals for radical technology acquisitions.

Insights into the meaning-based nature of satisfaction take on particular urgency in the arena of international marketing. A product benefit such as convenience, for example, may be expected or desired by many consumers. Yet, convenience does not have universal meaning across cultural bounds, because meaning depends on the local system of

lifestyles and tastes, as well as the life themes and life projects that make up each person's sense of self. Hence, convenience may mean simplicity in product setup, lower time commitments for use or maintenance, multiplicity of uses for family members, or something else. Managers must be cautious about treating satisfaction as a context-free outcome and consider it more comprehensively as a situated process of meaning investment.

Third, new product development activities may be improved through a methodological approach such as ours, which advocates the study of consumers' product interactions in actual daily life (cf. Fournier, Dobscha, and Mick 1998; Leonard and Rayport 1997). In particular, our inquiry uncovered substantial lability in consumers' experiences with technological products. This suggests that companies seeking satisfaction feedback about their innovations should strive to place early-stage prototypes in the homes and work sites of target consumers as soon as possible, with data then collected on an open-ended basis during prolonged usage. Beta testing works similarly in obtaining reactions to prototypes from employees using the product. However, compared with our research, this technique is likely to be less helpful because of social desirability biases and the shorter time spans typically used. Research designs closer to that which we employed should produce more accurate and surprising insights about the opportunities and challenges companies face in designing, testing, and marketing innovations that will keep their purchasers satisfied.

Limitations and Concluding Thoughts

Limitations of the present study deserve acknowledgment and consideration moving forward. First, although the number and length of interviews we conducted matched or exceeded most other phenomenological studies in consumer behavior, our immersion in the lives of informants was less, by comparison, than that which ethnographies can attain. Protracted ethnographies could reveal more, if not different, knowledge about the dynamics of satisfaction, including deeper insights into the connections between product and life satisfaction, the dynamic interplay of satisfactions within the home, and the process mechanisms that underlie consumers' satisfactions. Second, our study design naturally limits the scope of findings reported here. Specifically, the interviewing method we employed constitutes an intensive, evocative activity. As such, it may have magnified satisfaction issues that, on a day-to-day basis outside of an interview setting, are less cognitively accessible and less influential than suggested here. In addition, the definition of technology we used—one focusing on computerized, mechanical, and electronic exemplars—though dominant for informants interviewed in several phases of this research, likely has constrained our conclusions about satisfaction with consumer technologies. Whether the theoretical and managerial insights offered here extend to other views of technology, or to nontechnical product and service domains, remains an issue for further research.

Another and more fundamental aspect of our work, which represented a limitation for one reviewer, involves the direct relevance of our findings to satisfaction theory. This criticism, in its most extreme form, would maintain

that what we have examined is not satisfaction but the more general construct of consumer attitudes. Indeed, the differentiation of satisfaction from attitude or, in the temporal approach we undertook, from the process of experience-based attitude change is a conceptual thicket that most satisfaction researchers have sidestepped. We believe that this avoidance has been abetted by the field's commitment to the transaction-specific view, which, in essence, removes the need to worry about the demarcation by binding satisfaction tightly to the purchase occasion. Although this binding may help dodge the satisfaction-attitude distinction, we also believe that restricting satisfaction to the transaction-specific perspective ironically devalues the construct for managers and social theorists alike. We strongly concur with Tse, Nicosia, and Wilton (1990) and Anderson and Fornell (1994) who have called for more satisfaction research from a non-transaction-specific view, that is, one that elevates to greater prominence the study of consumers' experiences with products over time. Nonetheless, we also acknowledge that the current dividing line between this viewpoint on satisfaction and the concept of attitude is tenuous and contentious indeed. Our research suggests that recognizing varied modes of satisfaction, the nuanced role of product meanings, and suggested linkages among life satisfaction, life goals, and product satisfaction may help clarify these distinctions. Differentiating satisfaction from attitude remains a serious concern, however, one on which the unique and long-term payoff of satisfaction research ultimately may ride.

We also must highlight a similar issue involving the paradox balancing paradigm posited here. Whether satisfaction with technological products forms the crux of these insights, or whether our findings are more about the inevitable anxiety or exuberance humans experience in the face of change, is a point worthy of consideration. Because many of the products we examined were new to our informants' lives, they served as perturbations to existing structures and routines. As such, satisfaction in the technology domain may be less about happiness or unhappiness directed at particular objects of consumption and more about the ease with which people welcome, or at least accept, change. Within societies that champion unremitting leaps of innovation, such as the United States or Japan, the relationship between consumer satisfaction and response to change becomes a theoretical and practical frontier that the marketing field barely has begun to address. The paradox balancing paradigm, in which the trajectory of consumer-product interactions is truly emergent and stochastic, may be more appropriate in this regard than the rather artificial boundary between "before" and "after" that patterns the CS paradigm.

As with most discovery-oriented inquiry, this research raises more questions than it answers. In line with Wells (1994), we cannot help but view this as a constructive outcome in the context of recent years, when most satisfaction research has become entrenched in closed-form studies leading to incremental advances of received wisdom. Our findings support the value of stepping back from the dominant CS paradigm and its models, and stepping empathetically and longitudinally into consumers' lives, to rediscover satisfaction as the complex human process our project suggests it to be.

Appendix Consumer Satisfaction Cases: Selected Vignettes

Case A

Ben, an undergraduate student 23 years of age, was new to town and working part-time at a local photocopy center when he purchased his first telephone answering machine. Although he never owned one before, Ben refers to the machine as a "necessity" and exhibits several predictive expectations regarding machine use. These expectations are based largely on the fact that several of his friends own answering machines, and Ben has asked many questions. He is aware of several features that are "important to have" (e.g., remote access capability to hear recent messages). Ben's purchase motives are varied, though the main ones are social and economic. He expects that the machine will prevent missed calls from friends when get-together events are being planned and capture calls from his supervisor when she has extra hours (and income) to offer him. According to Ben, in his first interview, "I try to be a very organized person, a very time-conscious person, so it's a benefit to me. It allows me to make sure that I am in touch with everybody that's trying to get in touch with me. I try to be very courteous. You know, somebody calls me, I like to call them back." Eight weeks into ownership, Ben notes that "when I first got it, it was really like, 'Oh let's see if we got messages' kind of a thing. And after a while, you know, I only have like four friends here in town and most of them I see in class every day.... So, you know, I wasn't getting that many messages ... and it seemed like they called less after I got the machine ... and after my girlfriend moved in with me." By this time Ben also had accepted an offer to work full-time at the photocopy center. Asked how he felt about the answering machine at that time, he said, "I really like it. I mean I got everything I want out of it. I'm very pleased with it.... I've used most of the main functions of it." At the end of six months, Ben was still quite pleased with the machine. An important new usage had developed at this time, namely, screening calls: "I use it to screen calls sometimes, like if ... [on] my days off, ... I absolutely don't want to work or I've been planning a trip or something that day, I won't answer the phone. And when my girlfriend and I are eating, or watching a movie, or spending quality time together, well, we just let it ring. She really likes that. We just sit there and smile." He also asserts that "I don't think it's as big a necessity anymore as it was, as I used to think it was." Nonetheless, as he observes, "It's pretty much done everything that I bought it for, everything that I knew it had when I bought it. It's lived up to expectations."

Case B

Hank is a chemist 31 years of age, married, and the father of two young children. In an initial interview, Hank defined technology as "the advancement of knowledge," adding, "It always gets down to improving upon something ... a better way of doing something.... If you make a better mousetrap, that involves technology, but the real impetus behind it is you are trying to do something better. You are trying to find

a better way to kill a mouse." In a subsequent interview, Hank talked confidently about the way technologies "make life simpler, easier, more comfortable, and more enjoyable." He identified the family's new bread maker as "a remarkable little device" that both he and his wife "really appreciate." On many days his wife and four-year-old daughter make bread together in preparing for the evening meal. Asked what he likes most about the machine, Hank says, "Its simplicity. You know, you don't do anything. You just take all the ingredients, you dump them in, close the lid, push the button. Three hours later you have this wonderful loaf of bread. It's picture perfect. A perfect loaf of bread." Hank explains his "marvel" in terms of the scientific know-how that went into developing the machine and its "precisely staged, sophisticated computerized operations" (e.g., mixing ingredients; kneading, spinning, and baking the dough). "It's really an enormous amount of technology that went into a very simple but involved procedure," he says. "Making a loaf of bread is a pretty basic but incredibly complex thing. This machine really is an accomplishment of contemporary science." Hank smiles as he notes that the whole house has the sweet smell of fresh bread as the machine completes its work. "It comes out," he says, "so hot and fluffy ... a perfect little loaf of bread."

Case C

Bonita is a shy, religious woman who works at the local university as a lab technician. She is 28 years of age, single, and lives alone in her small house—save for her coterie of cats. Her friends and family have been encouraging her to buy a telephone answering machine so they can reach her when she is not at home by leaving recorded messages. But Bonita delayed in buying an answering machine, not because she cannot afford one, but because she does not like to use the telephone. At times when she is at home in the evenings and the phone rings, she simply does not answer it. She finds it intimidating to talk on the phone: "It's a very vulnerable situation you are getting into there, you are talking to someone that lots of time you don't know very well." She opines that she has avoided buying an answering machine because it would "obligate" her to return calls and thereby "use the phone more often." She likens the machine to "a plant" to which she will be a "slave." At the repeated urgings of her friends and family, Bonita finally acquiesces and reluctantly buys an answering machine. She places it on a wooden crate half-hidden in the back corner of her bedroom. About six weeks later, Bonita triumphantly indicates that she receives few messages on the machine, only two or three per week, and mostly from close family and friends. She reports her enjoyment in passing on messages for relatives, mainly between her brother in New York and her parents, who live locally and do not themselves own an answering machine. Six months after purchase, Bonita's frequency of using the machine has remained low ("I don't get that many messages"). She states in self-assured self-contradiction, "It turned out about the way I thought it would," and, she admits, "It hasn't required as much tending.... I am glad I have it.... I am surprised and impressed that it's been as useful as I think it has been."

Case D

Jack is an electrical engineer (married, age 28 years) who characterizes technology mostly in terms of state-of-the-art improvements in manufacturing processes and products. Jack is quick to note that these improvements, however, do not always meet people's needs any better, so "buyer beware." As Jack emphasized in an initial interview: "I think most people are blinded by technology in general and they don't really evaluate cost/benefit ratios so much. They are too willing to accept the myth of efficiency, always thinking that new stuff does the job better and faster than before." Gains have to be weighed against costs, according to Jack, and costs are not only financial, but also psychological and behavioral. Speaking of upgrading his computer in a subsequent interview, Jack noted, "Invariably it takes a tremendous amount of time to do these upgrades and get yourself back to the same level of productivity that you were at before. And we are talking stuff, the stuff I do like compiling programs and stuff, it takes me two minutes on the computer that I use now, or a minute and a half if I get a faster computer, maybe it is going to take me a minute and 15 seconds." But, he asked rhetorically, "Is it worth a week's worth of time getting this system upgraded and going for 15-second gains for stuff I do six, seven, eight times a day? Doesn't add up to much, does it?"

Case E

Liz is a married, 48-year-old jewelry designer who came of age in the 1960s. She does not embrace the role of homemaker readily and does not own many kitchen appliances. In fact, Liz does not even own a stove with burners and, as for small appliances, she says, "I just hate them." But one appliance has special significance to her. As she explained, "I had to do dishes all my life, growing up, and everything. I've always hated it.... My sister and I [did the dishes]. But she was older. She left home first." Asked about her current dishwasher, Liz calls it her "little kitchen slave.... I could stick every little dirty, rotten, nasty thing in there and walk away from it, listen to it hum for 20 minutes or a half-hour, and it's done.... You never even have to think about them." And she added with emphasis, "Wouldn't live without it. It's a lifesaver. Better than a daughter! I keep a Sears warranty on it so that if anything goes wrong they come and fix that sucker too. I do not want to live *ever* again without a dishwasher—or at least somebody to do my dishes." Liz told a story of a time when her dishwasher broke down. While waiting a few days for the repairman, and in the meantime refusing to do the dishes by hand, Liz laid the dishes out in her bathtub and then turned the hot shower on them. She admitted, "I'm so awful about dishes. I don't even offer to do dishes for people when I'm eating at their home or visiting. I will vacuum, I will scrub their floor, but I don't do the dishes. God, I love my machine."

Case F

Bob is a semiretired naval engineer (age 68 years). His Korean wife, Tina (age 44 years) currently is completing her nursing education. They have two teenage daughters. Recently, they purchased their first telephone answering ma-

chine at a local warehouse discount store. "It was on sale, \$19.99. Couldn't pass it up; they were giving it away. Didn't need or really want one, never even thought about owning one, but it was a bargain and I just grabbed it." At purchase time Bob denies much interest in the machine, saying, "I don't think I'll really use it at all.... I don't expect no calls." In contrast, Tina sees the machine as a way to ensure that she does not miss calls from family back in Korea, from her daughters when they are gone from home and may need her (e.g., a ride home), and from the hospital that is scheduling her nursing internships. She emphasizes family issues heavily in the initial interview and describes the answering machine's main benefit in terms of "security," as in going "without worry." Six weeks into ownership, Bob says, "I'm hooked on the machine," "It's like a car. Can't live without it." Everyone in the house is receiving calls on the machine, including the younger daughter who "got three calls on there just last night." Nonetheless, because the daughters change the machine's settings, Bob reports, "We don't allow nobody to mess with that machine at all anymore. I put the machine in [our] back bedroom so that no one can touch it. As a matter of fact, when the kids go in to check it, one of us is right there with them." For reinforcement, he also has put a sign over the machine that has a drawing of a skull and crossbones: a powerful warning that "no one mess with the machine." In essence, Bob has become the main operator of the answering machine, retrieving all calls and maintaining the settings. Tina receives many recorded calls, including some from Korea (about ill relatives and a nephew going to New York), some from neighbors (e.g., from an ill neighbor asking for assistance), and some from the hospital in regard to her work hours. Six months into ownership both Bob and Tina report that they are "very pleased" with the machine, asserting that it has become a "necessary" part of each family member's life. Tina anthropomorphizes the machine by likening it to a mother in past eras who "stays home all the time" to be available for her children. Meanwhile, the youngest daughter has begun some new friendships that the parents "disapprove of," so Bob has been erasing most of the messages intended for his daughter *before* she gets home to hear them. He said, "I told her outright, and I told the older one too, that if there was people calling here that I didn't agree with, they would be erased from the machine." In fact, the older daughter's boyfriend will not leave messages on the machine anymore because he knows that they are not being passed on. Bob admitted, "They don't like that, no, but I sure think it's useful."

Case G

Trudy (age 35 years) is a divorced mother of five children. She works full-time as a language instructor at a local high school and part-time as a waitress. She likes country dancing, plays volleyball twice a week for recreation, and plans to take scuba diving lessons in the coming summer. Trudy also aspires to be a published writer and is currently writing a motivational book of hope and advice for single mothers based on her Christian beliefs and principles. She suffers from an arthritic condition in her hands that makes writing longhand virtually impossible, but typing poses no problems. She owned an old model personal computer,

which she has used to begin writing her book. The computer required her to write at home, however, preventing her from spending more time outdoors with her kids. Because of this limitation, she has coveted a portable computer for a long time and finally purchases one when it goes on sale. She sees the new portable as offering the "chance to write anywhere, anytime." Her daughter even remarks: "Well, now we can go some places finally." By the end of the first six months of ownership, Trudy says, "Except for my kids, I can't imagine anything that I own that I treasure more than that." With the new computer she has written four chapters of her book and many personal letters, completed classroom assignments and records, and assisted her children with their homework. She takes the laptop to the park and uses it while her kids play and to relatives' and friends' homes during weekend trips away. She notes, "It fits so many aspects of my life." She confesses at one point, "This computer is me." She spills more and more of herself into the machine, noting that it is "kind of like a diary because I have all these tests and everything else on it as well, so if somebody 20 years from now opened up this computer, they would know so much about me." Trudy says also that one of her friends calls the computer her "security blanket," to which she adds, "I have to have it with me all the time" and "I like it so much that if it was to be taken, I think I would be heartbroken." When using the machine, Trudy says she feels "a little high" ("I don't know, I can't explain it. It just makes me feel good"), a feeling that no other computer (e.g., her father's) has been able to grant for her. During the day, Trudy keeps the computer locked in her drawer at school. At night she keeps it hidden on the floor in the back of her hall closet. She does this as well when she is gone on errands, fearing that "someone might break into the house and steal it" from her. Overall, Trudy's feelings about the portable computer are certainly unabashed: "I love it! I love it! I totally love it!"

Case H

Kris is a college junior, age 20 years, who, at the time of our first interview, was receiving threatening phone calls from an unidentified male. On recommendation from local police, her father purchased for her a caller ID device that would record the number of the originating phone and allow authorities to track down the harassing caller. At the time of purchase, Kris envisioned no other specific need or use for the device. In fact, she resisted getting it: "I was hesitant to get it, but for this situation it's most likely the only way we're going to find who is doing this. Beyond that I'm not entirely sure how useful it would be. I certainly don't want it. I am afraid my friends will be embarrassed or offended

when they find out that I am screening their calls before answering." Kris is so hesitant that she puts the machine in a drawer near the phone, so friends will not see it and learn that she is screening their calls. Ironically, the very day the machine is hooked up, the threatening calls cease altogether. At the six-week interview mark, Kris reports that she attends to the device "the minute" she comes home and becomes "excited" every time a call is registered. She tells us that she will actually run from another room to see what number is being flashed across the display. Kris also notes, "It is just there, working all the time. It became an instant part of my life the minute I took it out of the drawer and put it out on the table. I mean, you can't miss it, you can't help but use it.... It just seems like such a natural part of my life now, like it was always there. It's grown on me. I've grown really accustomed to it." She confesses, "I like to check it a lot. Even if I'm bored, I'll go and look, maybe I missed something." Kris and her roommate even entertain themselves with the device: "We have a little game we play that I see when it rings and it says [the call is from] out of the area, we try and guess who it's for." Together they keep a list of numbers with which each is familiar so that the daily log of calls can be checked and verified. They memorize common numbers and see who can be first to recognize incoming calls. Between her telephone answering machine (which takes messages but does not record numbers of callers who hang up) and her new caller ID device (which records all numbers), Kris recognizes that she now has much information about who does or does not call, including her employer, boyfriend, and other friends: "This just nails it down perfectly, and I know exactly who I want to talk to.... It's just a more informed choice and I like that. My boyfriend can't say, 'Oh I tried to call you' anymore because now I know if he really did or not." As for the device now sitting out on an end table, Kris says: "Nobody really asks about it.... Nobody's ever really commented on my having it once I explained to them that it is not as deceptive as screening calls on an answering machine." By the end of six months, Kris is receiving many calls that are not recognizable (i.e., she cannot match the numbers with people she knows). Despite her initial fears about the harassing caller (who has never called again), she describes these unknown calls as a kind of drama, wondering "Who could this be?" In some cases she even calls back the numbers to find out who they are—as a matter of intrigue and thrill. Kris also talks about trading up to a new model that operates on a wider calling area. She also freely admits that she wishes she had a second caller ID device as a matter of convenience—one for the living room and one for her bedroom—because she uses it so much.

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