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Extreme Makeover: Short- and Long-Term Effects of a Remodeled Servicescape

Using survey and transaction data from a natural experiment in a fast-food chain, the authors investigate the effects of store remodeling. They test (1) short- and long-term effects on customers' cognitions, affect, and behavioral intentions; (2) the moderating impact of spontaneous versus planned and group versus single-customer store visits; and (3) the differential effects on two store performance measures: average customer spending and store traffic. The results show that, in line with adaptation-level theory, short-term remodeling effects lose strength in the long run (i.e., after six months). Furthermore, customers on a spontaneous trip or in a group tend to be more responsive to store remodeling than customers on a planned trip or alone. Finally, whereas average spending increases in the short run and then returns to the baseline, store traffic initially remains unaffected and even shows a dip in the long run. These findings imply that ignoring the time-variant character of remodeling effects, the nature of customers' store visits, or the impact on store traffic may lead to inappropriate allocation of marketing resources.

Keywords: servicescape, store remodeling, adaptation-level theory, marketing effectiveness, long-term effects

Retailers spend millions of dollars each year to design, build, and furnish their establishments. Cutthroat competition prompts them to employ the store environment as a source of differential advantage. For example, in 2002, the restaurant chain Red Lobster started changing its traditional "wharf-side" layout to a "coastal home" setting (*Nation's Restaurant News* 2003). McDonald's recently began redesigning its 30,000 eateries, in a makeover of unprecedented scale, to provide the stores with a contemporary, welcoming image (Gogoi, Arndt, and Moiduddin 2006). In addition, in 2007, Victoria's Secret announced that it would remodel 80% of its stores over a five-year period (Merrick 2008).

Despite the pervasiveness of store remodeling, research to date does not provide a sufficient understanding of customer responses to store makeovers. Various empirical studies document the relationship between the physical store environment, or "servicescape" (Bitner 1992), and customers' cognitive, affective, and behavioral reactions. Research has demonstrated that customer response is influenced by individual servicescape parameters, such as color or lighting (e.g., Areni and Kim 1994; Crowley 1993), as well as more abstract store characteristics, including store design and ambience (e.g., Baker et al. 2002). However, several key issues that affect the assessment of store remodeling effects remain unaddressed. First, extant research is mainly cross-sectional and examines differences between alternative servicescapes in a static setting, such that it remains unclear whether the effects of a store remodeling vary over time. Second, few studies examine how store-visit characteristics moderate servicescape effects. As a result, current research falls short in identifying settings in which remodeling pays off more. For example, the (un)planned character of a visit or the presence of companions may influence how customers attend to a remodeled servicescape. Third, current literature focuses exclusively on in-store responses to the servicescape. However, a complete evaluation of the remodeling impact on store performance also requires an understanding of whether remodeling brings more people into the store in the first place.

In this study, we assess the effects of store remodeling on customers' cognitions, affect, and behavioral intentions, as well as on store performance. The purpose of our research is threefold: We (1) contrast the short-term effects with those found in the long run, (2) address the moderating role of store visit characteristics by studying spontaneous versus planned and group versus single-customer visits, and (3) compare the remodeling effects on two objective store performance measures, one that represents consumers' in-store behavior (average customer spending) and one that captures consumers' decisions to visit the store (store traf-

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fic). To this end, we use both survey and transaction data from a natural experiment in a fast-food chain that undertook a major remodeling project. The survey data measure cognitions, affect, and behavioral intentions of customers in both a remodeled and a control store, collected at four points in time up to one year after the remodeling. The transaction data include weekly spending and store traffic data for the same two stores and cover the same postremodeling period. We employ a multiple-indicator, multiple-cause (MIMIC) approach to analyze the survey data and regression analysis to model the store performance metrics.

We organize the rest of this article as follows: First, we outline our contributions to extant literature and derive hypotheses. We then describe our field experiment and data collection, discuss our analysis techniques, and present the results. Finally, we draw conclusions and note some limitations and opportunities for further research.

Study Contributions

We define "store remodeling" as the creation of a new servicescape that incorporates a substantially different store design. Thus, in contrast with "store renovation," which involves relatively minor changes in the servicescape (e.g., wall repainting), store remodeling typically entails significant changes in several servicescape dimensions, including ambience, layout, and signage and décor (Bitner 1992). Because companies usually carefully select the new characteristics of the store environment through such means as market research or concept tests, our research explicitly focuses on remodeling projects that customers perceive as a change for the better. The question then becomes whether such (positively perceived) store makeovers also lead to improvements in managerially relevant measures such as perceived service quality or customer spending.

Although no prior studies have explicitly addressed the effects of store remodeling, two streams of servicescape research examine the relationship between the store environment and customer responses. One stream demonstrates that consumers respond to changes in individual servicescape parameters, including music (e.g., Areni and Kim 1993; Milliman 1982), colors (e.g., Crowley 1993), lighting (e.g., Areni and Kim 1994), and scent (e.g., Mattila and Wirtz 2001). The other stream investigates consumer responses to more abstract store dimensions, such as design (e.g., Baker et al. 2002), ambience (e.g., Baker, Grewal, and Parasuraman 1994; Sharma and Stafford 2000), or overall servicescape perceptions (e.g., Hightower, Brady, and Baker 2002). Bitner (1992) incorporates many of these relationships in her theoretical framework, arguing that the servicescape serves as a surrogate indicator of intangible service performance and helps consumers form cognitive and affective responses and behavioral intentions toward the store's offering (see also Baker, Grewal, and Parasuraman 1994).

The context of store remodeling enables us to contribute to servicescape literature in three ways. First, most extant studies are cross-sectional and examine differences between store environments in a static, timeless setting (e.g., Baker, Grewal, and Parasuraman 1994), without proposing or testing any differences between short- and long-term effects. This approach implicitly suggests that short- and long-term effects are the same. However, research in environmental psychology indicates that reactions to a new environment are dynamic (e.g., Russell and Lanius 1984). Ignoring the time-variant character of servicescape effects may lead to inappropriate conclusions. For example, if customers' responses to a new store environment wear off over time, assessing only the short-term effects may lead to an overstatement of the overall impact and a suboptimal allocation of marketing resources. Therefore, we study both short- and long-term remodeling effects on cognitive, affective, and behavioral intention measures.

Second, precious little research has identified the conditions that enhance or weaken the role of the servicescape. An exception is Kaltcheva and Weitz's (2006) study, which shows that an exciting servicescape increases shopping intentions for recreational but not for task-oriented store trips, suggesting that store visit characteristics may moderate the effectiveness of store remodeling. In this study, we examine remodeling effects for spontaneous versus planned and group versus single-customer store visits—characteristics that the literature has identified as potential drivers of shopping behavior (e.g., Inman, Winer, and Ferraro 2009; Kahn and Schmittlein 1992). For example, previous research has suggested that consumers in an "unplanned state" are more inclined to include price and promotion information in their purchase decision (Bucklin and Lattin 1991). Other work shows that the influence of companions can increase the urge to purchase (Mangleburg, Doney, and Bristol 2004). Both moderators involve managerially relevant characteristics that are relatively easy to observe or measure and have discriminant power in that they can reveal the situations, customers, store locations, or industries for which servicescape management is especially important. For example, remodeling the servicescape may work differently for sectors in which store visits are spontaneous (e.g., a card and gift store) rather than planned (e.g., a supermarket). In addition, a sandwich shop in a city's financial district with a high proportion of single visitors may be affected differently by remodeling than one in a shopping area attracting groups of consumers.

Third, despite recent calls to improve marketing accountability (e.g., Lehmann 2004), most servicescape research investigates effects on self-reported measures of psychological constructs (cognitions, affect, or behavioral intentions) and ignores objective store performance. Servicescape studies that feature objective measures focus solely on customers' in-store behavior, such as money spent (e.g., Areni and Kim 1993, 1994; Milliman 1982) or the number of items purchased (Areni and Kim 1993, 1994; Spangenberg et al. 2006), but they reveal little about the effects on customers' decision to visit the store in the first place. Yet store performance hinges on store-visit decisions as well as in-store purchase decisions, and both decision types have been identified as critical "approach behaviors" toward the servicescape (see Bitner 1992; Mehrabian and Russell 1974). Moreover, research indicates that marketing instruments tend to affect these behaviors differently, such that ignoring one of them may lead to inaccurate manage-

rial conclusions (e.g., Van Heerde, Gijsbrechts, and Pauwels 2008). In our study context, the essential difference between these behaviors is that in-store purchase decisions occur upon the consumer's actual exposure to the store environment, whereas the decision to visit the store naturally takes place before arriving in the servicescape. Therefore, in addition to analyzing cognitive, affective, and behavioral intention measures, we compare the effects of remodeling on two important store performance metrics: average spending per customer, which captures in-store purchase behavior, and store traffic, which corresponds to consumers' decisions to visit the store. Research in other marketing domains has used the same metrics to assess objective store performance (e.g., Van Heerde and Bijmolt 2005).

Hypotheses Development

Short- and Long-Term Effects on Cognitions, Affect, and Behavioral Intentions

Short-term effects. Ample conceptual and empirical work suggests that the servicescape can serve as "physical evidence" and provide informational cues that help customers develop their beliefs, feelings, and behavioral intentions toward the store's offering (e.g., Baker et al. 2002). An appealing store environment (either in general or on certain dimensions) positively influences cognitive and affective responses, such as attitudes, satisfaction, perceived quality and value, and store image (Baker, Grewal, and Parasuraman 1994). The servicescape also has a positive impact on behavioral constructs, such as word-of-mouth communication and loyalty (Hightower, Brady, and Baker 2002).

Although these studies are static, their findings seem especially relevant shortly after a store remodeling, when many customers are confronted with the new servicescape for the first time (Baker et al. 2002): The informational value of the servicescape is indeed highest when people are unfamiliar with the store environment (e.g., Baker, Grewal, and Parasuraman 1994; Baker et al. 2002). Novel stimuli are more salient (e.g., Berlyne 1970) and thus tend to attract people's attention and influence their thoughts and feelings. According to Bitner's (1992) framework, positive cognitive and affective responses to the servicescape in turn generate positive effects on consumers' behavioral intentions. Therefore, we expect that cognitions, affect, and behavioral intentions improve in the short term after a remodeling.

H_1: Store remodeling has a positive short-term effect on (a) cognitions, (b) affect, and (c) behavioral intentions.

Long-term effects. Environmental psychologists warn that ignoring the dynamic aspects of people's responses to environmental stimuli will result in an incomplete account of environmental effects (e.g., Russell and Lanius 1984). These researchers refer to adaptation-level theory (Helson 1964), which posits that a person perceives stimuli only relative to an adapted standard: Changes in stimuli may produce effects, but then the new experiences become integrated into the adaptation level and thus become the new frame of reference. Mehrabian (1995) uses the term "habituation" to refer to the phenomenon by which the influence of an environment decreases with repeated exposure. As a result, short-term reactions to environmental stimuli lose strength in the long run (Russell and Lanius 1984). For example, job satisfaction and behavioral outcomes peak shortly after a job change but then return to an equilibrium (termed the "honeymoon-hangover effect"; e.g., Boswell, Boudreau, and Tichy 2005). Gerontologists describe the impact of an environmental change on older people and point out that awareness of the new environment decreases as familiarity with the new setting increases (e.g., Lawton 1990).

In line with adaptation-level theory, we expect that customers' short-term reactions to the remodeled servicescape wane in the long run, as they become more familiar with the new store environment. That is, as time goes by, an increasing number of customers are (repeatedly) exposed to the new design and integrate impressions of the new environment with their adaptation levels. As a result, we expect any initial remodeling effects to taper off.

H_2: Any short-term impact of store remodeling on (a) cognitions, (b) affect, and (c) behavioral intentions loses strength in the long run.

Moderating Effects of Spontaneous Versus Planned and Group Versus Single-Customer Visits

In H_1 and H_2, we describe the general effects of store remodeling across time but ignore the nature of the store visit. Therefore, we also consider how two specific store visit characteristics may lead to upward or downward shifts in customer responses.

Spontaneous versus planned visits. Research has shown that consumers may rely on shopping scripts that consist of predetermined sequences of actions to facilitate the shopping process (e.g., Bower, Black, and Turner 1979). We argue that consumers who plan their store visits are more likely to rehearse and define their shopping behavior, thereby generating or activating shopping scripts (Block and Morwitz 1999). In contrast, consumers who do not plan their shopping trips are more likely to rely on external information and let the store environment shape their purchase trip. For example, consumers who do not contemplate their purchases before entering the store are more responsive to in-store promotions (Bucklin and Lattin 1991). Similarly, customers on a spontaneous shopping trip should be more influenced by a remodeled servicescape than customers who plan their trips in advance. The argumentation holds in both the short and long run.

H_3: The effects of store remodeling on (a) cognitions, (b) affect, and (c) behavioral intentions are greater for spontaneous than for planned trips.

Group versus single-customer visits. In general, research supports the notion that the presence of companions during the shopping or consumption process reinforces consumers' responses (Tombs and McColl-Kennedy 2003). Consumption in a group often involves an experiential process in which consumers interact and exchange opinions. These

interactions can increase appraisals of and emotional responses to the consumption experience (Holt 1995), of which the servicescape forms an essential part. The presence of companions also may prompt consumers to exhibit more pronounced behavioral responses, such as in their consumption amount (e.g., Clendenen, Herman, and Polivy 1994) or time spent in the store (Sommer and Sommer 1989). Researchers attribute these enhanced behavioral reactions to increased levels of arousal or conformity to social norms (Tombs and McColl-Kennedy 2003). Similarly, the presence of companions may strengthen consumers' behavioral response to a remodeled servicescape. In summary, we expect customers in a group to react more favorably to a remodeling than single customers, in both the short and long run.

H_4: The effects of store remodeling on (a) cognitions, (b) affect, and (c) behavioral intentions are greater for group than for single-customer visits.

Effects on Store Performance: Average Customer Spending Versus Store Traffic

Average customer spending and store traffic correspond to two specific approach behaviors: purchasing and visiting the store (Bitner 1992). As such, they should exhibit response patterns similar to those we have described previously (see H_1 and H_2). Nonetheless, these performance metrics deserve separate attention because customer spending is likely to be more sensitive to remodeling than is store traffic. Spending takes place when customers are physically present in the store environment and is therefore prone to the influence of the remodeled servicescape, at least in the short run. Previous research has demonstrated that even minor changes in store atmosphere can increase the amount spent (e.g., Spangenberg et al. 2006). Store traffic also might benefit from the remodeling (e.g., through curiosity visits), but for at least two reasons, we expect any such positive effect to be modest compared with the impact on spending.

First, the decision to visit a store naturally occurs outside the servicescape and is therefore less susceptible to the influence of the store environment (Bettman 1979). To include the servicescape in their store visit decisions, consumers must draw on their mental representations of the store environment (cf. Tversky 1981), which arguably are less powerful than a direct exposure. A few studies have shown that elements of a store's environment can influence store choice (see Pan and Zinkhan 2006). However, most of the literature on store choice either ignores the role of the servicescape or finds it overshadowed by the impact of factors such as assortment or situational variables (e.g., Bell, Ho, and Tang 1998; Van Kenhove, De Wulf, and Van Waterschoot 1999).

Second, for some consumers, remodeling may actually lead to negative store traffic effects. In particular, a store remodeling may disrupt consumers' habitual behaviors and lead them to identify and pursue other alternatives (Moe and Yang 2009).[1] As a result, during the rebuilding, some consumers may switch to other stores, a behavior that could persist after the remodeling has been completed, in the short and even the long run.

Thus, although traffic might respond positively to store remodeling, we expect any such effects to be lower than the spending effects. Because we measure the effects on spending and traffic as percentage changes, we can explicitly compare them.

H_5: The percentage impact of store remodeling on store traffic is less than its percentage impact on average customer spending.

Data and Research Design

We employ a natural experiment in European branches of a U.S.-based fast-food chain. In 2006, the chain started a major store remodeling effort involving substantial changes to the lighting, spatial layout, furnishings, paintings, color schemes, and several other factors (see Appendix A). We combine multiperiod survey data with weekly store performance data to test our hypotheses. The data come from a treatment store that was remodeled and a control store whose servicescape remained unaltered. We use a pretest/posttest control group design, as Shadish, Cook, and Campbell (2002) suggest, to control for preremodeling differences in the dependent measures between the treatment and control stores and accommodate changes across time not due to the remodeling.

In view of our hypotheses tests and context, we define short-term effects as those that take place within the first half-year after the store remodeling and long-term effects as those that set in thereafter. Sloot, Fok, and Verhoef (2006) use the same definition for their research on assortment reductions in the detergent category, which features similar purchase cycles.[2]

Store Selection

To avoid confounding effects, we match the treatment and control stores carefully on several criteria. First, both stores are situated along major traffic arteries in commercial strips with big-box retailers. Second, households within a ten-minute driving distance are similarly distributed across Experian's global lifestyle and sociodemographic segments, and the cities in which the restaurants are located have similar population sizes and unemployment rates. Third, competition from other fast-food chains in the vicinity is similar for both restaurants: Within a 15-mile radius, there is no competition from other major fast-food chains. Fourth, both stores use the same price setting and have the same product offering. Fifth, the two stores are managed in a similar way: They both (1) operate under the same (strict) standard operating procedures, (2) receive similar scores from mystery shopper visits and company inspectors, and (3) have comparable management turnovers. Sixth, to account for other characteristics that we could not observe directly, we chose

[1]We thank an anonymous reviewer for pointing out this possibility.

[2]The average resident in the studied market visits this fast-food chain almost 11 times per year. ACNielsen data indicate that the detergent category has similar purchase frequencies (approximately nine times per year). The definition of short-term and long-term may differ in other settings.

stores with comparable sales fluctuations during the preremodeling period. Even after deseasonalization, the correlation coefficient of the stores' weekly sales still amounted to .82.

Remodeling took about three weeks (during which the store remained open) and did not entail confounding changes in other marketing mix elements or affect seating capacity. Post hoc checks also indicate that after the remodeling, the socioeconomic and business environments of both stores remained similar. For example, in both cities competition remained stable, and unemployment followed the same slightly decreasing pattern during our observation period.

Survey Data

We use survey data to test the cross-time effects on cognitions, affect, and behavioral intentions (H_1 and H_2), as well as the moderating impacts of spontaneous versus planned and group versus single-customer visits (H_3 and H_4). Specifically, we conducted surveys with 2997 customer respondents at four points in time: 2 months before the remodeling (Wave 1: 599 respondents in the treatment store and 93 in the control store), right after the remodeling (Wave 2: 782 and 100 respondents, respectively), 5 months after the remodeling (Wave 3: 677 and 103 respondents, respectively), and 12 months after the remodeling (Wave 4: 421 and 222 respondents, respectively).[3] In line with our definition of short term and long term, Waves 2 and 3 represent the short-term effects, and Wave 4 captures the long-term effects. Each data collection period lasted a week to ensure that we covered different days of the week and different times of the day. Within a given time window, respondents were selected through convenience sampling. All interviewers received the same instructions regarding when to hand out questionnaires, how to address potential questions, and when to collect completed questionnaires. Customers filled out the questionnaires after they had eaten in the restaurant and experienced the environment. Every respondent received a voucher for a free menu item as a token of appreciation. Nonresponse rates were similar in both stores, with an average of 24.3% in the treatment store and 26.5% in the control store.

We selected the measures included in our questionnaire on the basis of a review of current servicescape research. Though nonexhaustive, our nine constructs cover cognitive, affective, and behavioral aspects that have direct managerial relevance. To measure these constructs, we adapted existing multiple-item scales (see Appendix B). We included (1) three cognitive constructs: perceived value (Cronin et al. 1997), perceived service quality (Hightower, Brady, and Baker 2002), and store image (Graeff 1996); (2) three affective constructs: overall satisfaction (Bitner and Hubbert 1994), encounter satisfaction (Bitner and Hubbert 1994), and attitude (Day and Stafford 1997; Muehling, Laczniak, and Stoltman 1991); and (3) three behavioral intentions: loyalty (McMullan 2005; Zeithaml, Berry, and Parasuraman 1996), desire to stay (Hightower, Brady, and Baker 2002; Wakefield and Blodgett 1996), and word-of-mouth communication (McGregor 2006; Reichheld 2003; Zeithaml, Berry, and Parasuraman 1996). We do not include purchase or store-visit intentions because these responses are captured by our store performance data (see the following subsection). With the exception of the store image and attitude items, for which we use five-point semantic differential scales, items are measured on five-point Likert scales. Two bilingual natives translated the original instruments into the local language and back into English independently. We adjusted the translated items to resolve the few conflicts between the original and back-translated versions.

To investigate the moderating role of the type of store visit, we included two questions to determine whether the respondent's store visit was planned or spontaneous and whether he or she came alone or with a group. Following other servicescape research (e.g., Areni and Kim 1993), we also added categorical control variables for gender and age (younger than 29, 30–39, 40–49, 50–59, and older than 60 years).

We evaluate the psychometric quality of our scales with a confirmatory factor analysis (CFA) of the pooled survey data, using maximum likelihood estimation (see Appendix B). We drop one item of the original store image scale and allow for nonzero error correlations within the loyalty and word-of-mouth scales; because the chain-related items from those scales have common variance that they do not share with the store-related items (or vice versa), we freely estimate the error correlations of the two chain-related loyalty items, the two chain-related word-of-mouth items, and the two store-related word-of-mouth items. The chi-square statistic for the final CFA model is significant, but the comparative fit index (CFI), Tucker–Lewis index (TLI), normed fit index (NFI), and root mean square error of approximation (RMSEA) all suggest good model fit ($\chi^2(213) = 1747.54$, $p < .01$; CFI = .98; TLI = .97; NFI = .97; and RMSEA = .055; e.g., Browne and Cudeck 1993). Furthermore, the coefficient alpha values and Spearman-Brown corrected correlations reveal acceptable scale reliabilities. Finally, we establish discriminant validity on the basis of a significant decrease in model fit when we set any of the construct correlations to 1 (Anderson and Gerbing 1988).

Store Performance Data

We supplement our survey data with customer spending and store traffic information for both the treatment and control stores. Specifically, we study the weekly average transaction amount and the weekly number of transactions. This information enables us to shed further light on the remodeling effects over time (H_1 and H_2) and compare the effects on customers' decision to spend and their decision to visit the store (H_5). The data cover a time period from approximately 8 months before to 13 months after the remodeling, or 92 weeks in total. Although a single transaction may involve meals sold to different consumers (e.g., families), we consider the number of transactions an indicator of store

[3]The samples are smaller in the control store, at the company's request. Hancock, Lawrence, and Nevitt (2000) show that unbalanced samples do not increase the Type I error rate if the samples have the same measurement model. A comparison of constrained and unconstrained multigroup confirmatory factor analyses indicates that this is the case for our data. Details are available on request.

traffic and the average transaction amount a measure of average customer spending.

Manipulation Check of Servicescape Perceptions

A premise of our research is that the remodeling involves a change for the better. In other words, a servicescape can be modified in many ways, but we assume the remodeling company carefully selected servicescape characteristics that optimize the appeal of the store environment. To test whether servicescape perceptions truly increase after the remodeling, our survey also featured a 13-item battery to measure respondents' perceptions of the store environment (see Appendix C). These items match previous servicescape literature (Bitner 1992; Hightower, Brady, and Baker 2002) and pertain to Bitner's (1992) ambient, layout/functionality, and signs/symbols/artifacts dimensions, as well as Baker, Grewal, and Parasuraman's (1994) ambient and design dimensions.

For this manipulation check, we employ a two-way multivariate analysis of covariance (MANCOVA), in which store (treatment/control) and wave (1/2/3/4) serve as the factors and gender, age, and the two store visit characteristics (spontaneous/planned and group/single customer) represent the covariates.[4] The overall interaction effect between store and wave is highly significant (Wilks' Λ = .895, F(39, 8031.6) = 7.830, $p < .001$, partial $\eta^2 = .04$), which implies that respondents' perceptions of the treatment store follow a significantly different pattern over time compared with the control store perceptions. The individual interaction coefficients (Appendix C) indicate that, with the exception of in-store lighting, all items show significant ($p < .05$) improvements in the remodeled store, in both the short (Waves 2 or 3) and long (Wave 4) run.[5] Thus, the remodeling undertaken improves customer perceptions of the servicescape overall.

Analyses

Analysis Survey Data

We use a MIMIC approach to analyze the survey data. Such models are common in situations in which a set of background variables (causes) affect one or more latent constructs, as measured by a set of outcome variables (indicators) (Jöreskog and Goldberger 1975). In our MIMIC model, the indicators are items that measure the cognitive and affective responses and behavioral intentions. The causes are the same for all nine dependent constructs and involve (interactions among) the following variables:

STORE1 = 1 for observations made in the treatment store and 0 otherwise;
WAVE2, WAVE3, and WAVE4 = 1 for observations made during the second, third, and fourth wave, respectively, and 0 otherwise;
SPONT = 1 for spontaneous visits and 0 otherwise;
GROUP = 1 for group visits and 0 otherwise;
GENDER = 1 for female and 0 for male respondents; and
AGE2, AGE3, AGE4, and AGE5 = 1 if the respondent belongs to the second (30–39 years), third (40–49 years), fourth (50–59 years), or fifth (60 years and older) age bracket and 0 if otherwise.

In addition to the main effects of these variables, we include specific interaction effects to model the phenomenon of interest. First, the interactions STORE1 × WAVEw measure the remodeling effects in wave w (w = 2, 3, 4) relative to the first (i.e., preremodeling) wave. These interactions capture the extent to which the differences between the response measures of the treatment and control stores before the remodeling change in the postremodeling waves. Second, the interactions STORE1 × WAVEw × SPONT and STORE1 × WAVEw × GROUP represent the incremental remodeling effects in wave w (w = 2, 3, 4) when we consider a spontaneous versus planned visit or group versus single-customer visit, respectively. In these interactions, we mean-center SPONT and GROUP to ensure the coefficients of the STORE × WAVE interaction terms can be interpreted as average effects across consumers.[6]

Analysis of Store Performance Data

We model average customer spending and store traffic as exponential functions of their explanatory variables:

$$(1)\quad AS_{it} = \exp[\alpha_i + X_{it} \times \delta + f(t) + I_{it} \times k(t) + \varepsilon_{it}], \text{ and}$$

$$(2)\quad ST_{it} = \exp[\beta_i + X_{it} \times \phi + g(t) + I_{it} \times m(t) + \upsilon_{it}],$$

where

AS_{it} = average customer spending (in euros) in restaurant i in week t (i = 1, 2; t = 1, 2, …, 92);
ST_{it} = store traffic (i.e., number of transactions) in restaurant i in week t;

[4]Note that our perceived servicescape scale is formative. Without reflective measures, the perceived servicescape construct would remain unidentified in a structural equation modeling analysis. Therefore, we employ MANCOVA, using the individual items as separate dependent variables while allowing for correlated errors (Thompson and Green 2006). An analysis of covariance of the summed item scores leads to the same conclusion—namely, that perceptions increase significantly ($p < .05$) after the remodeling.

[5]In the new store design, the light intensity automatically adjusts to account for outside weather conditions, which may have led to inconsistent perceptions and, thus, insignificant differences between the two store designs. Therefore, we ran an online survey and randomly assigned 104 respondents to view pictures of either the new or the old store design under normal weather conditions. These respondents completed a multi-item perception scale similar to that in our main study. All perceptions, including those regarding lighting, were significantly higher ($p < .05$) for the new than the old store design. Details are available on request.

[6]Our MIMIC analysis bears some resemblance to multivariate analysis of variance (MANOVA), which can also assess shifts in multivariate measures. However, in comparison with MANOVA, a MIMIC model accounts for the measurement error of the response items and leads to lower Type II errors (cf. Hancock, Lawrence, and Nevitt 2000).

X_{it} = a row vector of control dummy variables indicating promotions, public holidays, school vacations, and the construction period for remodeling the store (during which it remained open);

I_{it} = an indicator equal to 1 if restaurant i is the remodeled restaurant and week t is a postremodeling week, and 0 otherwise;

f(t) and g(t) = functions capturing baseline fluctuations in AS_{it} and ST_{it}, respectively. The parameters of these functions must be estimated;

k(t) and m(t) = functions capturing the incremental changes in AS_{it} and ST_{it}, respectively, due to the remodeling. The parameters of these functions must be estimated;

α_i and β_i = store-specific intercepts to be estimated;

δ and ϕ = vectors of response coefficients to be estimated; and

ε_{it} and υ_{it} = normally distributed error terms.

In an exponential model, the estimated parameters have relative meaning; that is, they should be interpreted as percentage changes relative to the restaurant's baseline (Sloot, Fok, and Verhoef 2006). Thus, the functions f(t) and g(t) capture percentage changes over time in AS_{it} and ST_{it}, respectively, and are common to both the treatment and the control restaurant; k(t) and m(t) instead are unique to the treatment store and refer to the incremental percentage changes in the weeks after the remodeling. The challenge when modeling the time functions f, g, k, and m consists of selecting a sufficiently flexible form without overweighting the deviant observations. To this end, we opted for polynomial functions whose degree depends on model fit.[7] In our estimations, sixth-degree polynomials lead to the highest adjusted R-square, so we express the impact of the store redesign r weeks after the remodeling as follows:

$$(3)\ a_0 + a_1 \times r + a_2 \times r^2 + \ldots + a_6 \times r^6,$$

where a_0, a_1, a_2, …, a_6 are the estimated parameters that determine the shape of the polynomial.

Because we can linearize Equations 1 and 2 by taking the natural logarithm and because the functions f, g, k, and m are linear in the parameters, we can estimate our model with generalized least squares. In particular, we employ Parks's (1967) method, which corrects for autocorrelation, heteroskedasticity, and contemporaneous correlation among the four data series (i.e., average spending and store traffic for two stores).

Results

Short- and Long-Term Effects on Cognitions, Affect, and Behavioral Intentions

We estimate our MIMIC model with maximum likelihood. Although the chi-square statistic is significant ($\chi^2(516) = 3405.58$, $p < .01$), the CFI (.97), TLI (.94), NFI (.96), and RMSEA (.049) indicate good conformance of the data with the model (Browne and Cudeck 1993).[8] To save space, we report only the estimated coefficients of the interaction terms, which capture the mechanisms of interest; the results for the main effects and measurement model are available on request. In Table 1, we present the coefficients of the STORE1 × WAVE2, STORE1 × WAVE3, and STORE1 × WAVE4 interaction terms. These coefficients capture the over-time remodeling effects for the average consumer, because the store visit characteristics are mean-centered.

Short-term effects. All three behavioral intention measures (loyalty, desire to stay, and word-of-mouth communication) and two cognitive measures (perceived value and store image) have significantly positive effects in the second and/or third wave ($p < .05$). These results support H_{1a} and H_{1c} and reinforce Baker et al.'s (2002) and Bitner's (1992) claims that consumers use the remodeled servicescape as a cue to form beliefs about the store and the product offering and adjust their behavior accordingly. However, we find only partial support for H_{1a} because the cognitive measure of perceived service quality remains unaffected. Furthermore, H_{1b} is not supported because the interaction coefficients for the three affective measures (overall satisfaction, encounter satisfaction, and attitude) are nonsignificant. In summary, on average, customers' reactions to the remodeled store environment are cognitive and behavioral rather than affective. We elaborate on these findings in the "Discussion" section.

Long-term effects. As we show in Table 1, we find support for H_{2a} and H_{2c} in that the cognitive and behavioral response measures that increase in the short run lose strength in the long run (fourth wave). The affective measures (see H_{2b}), which do not react in the short run, do not show significant effects in the long run either.

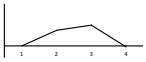
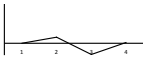
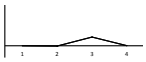
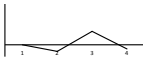
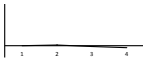
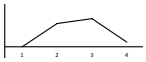
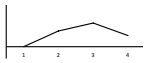
While most measures have no long-term remodeling effect ($p > .10$), store image and desire to stay do not completely return to their baseline levels by the end of the observation period ($p < .01$). Nonetheless, our results lend credence to the application of adaptation-level theory to servicescape changes. That is, customers' initial responses taper off as the remodeled store becomes the new frame of reference.

Although our main interest is in the total short- and long-term remodeling effects on our response measures, we also ran a model in which, in line with Bitner's (1992) conceptual framework, the cognitive and affective reactions are antecedents of intentions. The short- and long-term remod-

[7]We also estimate more flexible time functions, namely, cubic spline functions (Sloot, Fok, and Verhoef 2006), but these models merely confirm the patterns we find with our more parsimonious polynomial functions.

[8]To validate the assumption of measurement invariance across the eight subgroups in our sample—an assumption that is intrinsic to a MIMIC analysis—we run a series of multigroup CFAs with increasingly restrictive between-group equality constraints. The results indicate that the assumption of measurement invariance is not problematic in our data set (Thompson and Green 2006). Furthermore, we test for differential item functioning (DIF) by running a model that accommodates direct relationships between all items and the "grouping" dummy variables. We set these paths to zero and inspect the modification indexes and expected parameter changes. The data do not exhibit systematic DIF.

TABLE 1
Effects of Remodeling on Affective, Cognitive, and Behavioral Intention Measures

	Estimated Interaction Coefficients (STORE × WAVE)[a]			
	Short Term		Long Term	
Response Measure	2nd Wave	3rd Wave	4th Wave	Graph
Cognitive Responses				
Perceived value	.210	.280*	–.014	
Perceived service quality	.082	–.151	–.011	
Store image	.588***	.815***	.506**	
Affective Responses				
Overall satisfaction	–.004	.118	.001	
Encounter satisfaction	–.089	.181	–.056	
Attitude	.009	–.011	–.027	
Behavioral Intentions				
Loyalty	.315*	.381*	.063	
Desire to stay	.409***	.695***	.409**	
Word of mouth	.213	.321***	.151	

*$p < .05$ (one-sided; we conduct one-sided tests for directional hypotheses).
**$p < .01$ (two-sided).
***$p < .01$ (one-sided).
[a]These coefficients capture the extent to which the difference in cognition, affect, or behavioral intentions between the treatment and the control stores increases (+) or decreases (–) compared with the period before the remodeling. For example, a coefficient of .210 in Wave 2 indicates that the difference in response between the treatment and control store increases by .210 compared with Wave 1.
Notes: Model fit: $\chi^2(516) = 3405.58$, $p < .01$; CFI = .97; TLI = .94; NFI = .96; and RMSEA = .049.

eling effects are identical to those obtained with our MIMIC model, but the Sobel test indicates that the effects on desire to stay and word-of-mouth communication are partially mediated by store image ($p < .01$). This additional test provides some support for the notion that consumers use the environment to form beliefs about the store, which in turn affect their behavioral intentions.

Moderating Effects of Spontaneous Versus Planned and Group Versus Single-Customer Visits

We report the coefficients of the three-way interaction terms, STORE1 × WAVEw × SPONT and STORE1 × WAVEw × GROUP (w = 2, 3, 4), in Table 2. These coefficients capture the differences in remodeling effectiveness between spontaneous and planned trips and between group and single-customer visits, respectively.

Spontaneous versus planned visits. In line with $H_{3a–c}$, consumers on a spontaneous visit tend to respond more positively to the store remodeling than consumers who planned their visit in advance. The relevant interaction coefficients (first three columns in Table 2) are consistently positive, and we find significant effects at the cognitive, affective, and behavioral levels. Relative to planned visits, spontaneous visits lead to significantly greater effects in the short run (Waves 2 or 3) on the cognitive measure of perceived value ($p < .05$) and two behavioral intention measures, desire to stay ($p < .05$) and word-of-mouth communication ($p < .01$). These differential effects persist in the long run ($p < .01$). Spontaneous visits also trigger significantly greater affective responses in terms of overall satisfaction and attitude, but only in the short run ($p < .05$). In summary, our results support the idea that spontaneous customers rely less on scripts and instead use environmental cues. Our finding of mainly short-term effects is in line with Iyer (1989), who argues that consumers rely even more on external cues when they have limited knowledge of the store environment. In our case, this is especially true right after the remodeling.

Group versus single-customer visits. The results provide some evidence that, consistent with $H_{4a–c}$, customers in a group respond more positively to the remodeling than single customers. The significant interaction coefficients (last three columns of Table 2) indicate that group visits tend to induce greater short-term effects on overall satisfaction and desire to stay and greater long-term effects on perceived service quality, overall satisfaction, attitude, and word-of-mouth communication ($p < .05$). The prevalence of long-term effects indicates that the impact of remodeling tends to be more persistent in time for customers in groups. However, we find an unexpectedly significant, negative effect ($p < .05$) on perceived value shortly after the remod-

TABLE 2
Moderating Effects of Spontaneous Versus Planned and Group Versus Single-Customer Visits

	Estimated Three-Way Interaction Coefficients (STORE × WAVE × STORE VISIT CHARACTERISTIC)[a]					
	Spontaneous (Versus Planned)			Group (Versus Single Customer)		
Response Measure	**2nd Wave**	**3rd Wave**	**4th Wave**	**2nd Wave**	**3rd Wave**	**4th Wave**
Cognitive Responses						
Perceived value	.178	.292*	.441**	–.442*	.111	.542
Perceived service quality	.032	.191	.213	.041	.185	.568*
Store image	.070	.042	.061	.042	.072	.072
Affective Responses						
Overall satisfaction	.204*	.211*	.152	.240	.324*	.465*
Encounter satisfaction	.015	.204	.170	.172	–.093	.660
Attitude	.227*	.276*	.038	.065	.121	.603*
Behavioral Intentions						
Loyalty	.177	.098	.230	–.196	.112	.675
Desire to stay	.364*	.524***	.627***	–.017	.390*	.548
Word of mouth	.457**	.555***	.476**	–.187	.240	.697*

*$p < .05$ (all tests are one-sided because they pertain to directional hypotheses).
**$p < .01$.
***$p < .001$.
[a]These coefficients capture the extent to which the remodeling effects increase (+) or decrease (–) in the switch from a planned to a spontaneous trip and from a single-customer to a group visit. For example, the coefficient of .524 in the second column for desire to stay indicates that, in Wave 3, the desire to stay score was .524 higher for spontaneous trips than for planned trips.
Notes: Model fit: $\chi^2(516) = 3405.58$, $p < .01$; CFI = .97; TLI = .94; NFI = .96; and RMSEA = .049.

eling. Compared with single customers, visitors in groups appear to rely less on the servicescape for their assessments of the value of the store's offering, possibly because they would rather consult their companions (Mangleburg, Doney, and Bristol 2004).

Effects on Store Performance

In Table 3, we summarize the estimation results for Equations 1 (average customer spending) and 2 (store traffic). In the interest of space, we exclude the results for the store intercepts and the baseline functions f(t) and g(t). Although Table 3 includes the effects of promotions, holidays, vacations, and the construction period (which all make intuitive sense), we focus on the remodeling effects. We provide estimated function values of k(t) and m(t) for specific postremodeling weeks. However, a complete assessment of the remodeling effects requires plotting the entire functions. Therefore, in Figure 1, we depict the estimated functions k(t) and m(t), along with a 95% confidence band for the 55 weeks after the remodeling. As we indicated previously, the

TABLE 3
Effects on Average Customer Spending and Store Traffic

	Average Customer Spending		Store Traffic	
Parameter	**Estimate[a]**	**(SE)**	**Estimate[a]**	**(SE)**
Remodeling Effects				
2nd postremodeling week	–.002	(.014)	–.003	(.031)
10th postremodeling week	.037**	(.010)	–.014	(.017)
18th postremodeling week	.036**	(.010)	–.032	(.017)
26th postremodeling week	.002	(.009)	–.027	(.016)
34th postremodeling week	–.007	(.009)	–.026	(.016)
42nd postremodeling week	.007	(.010)	–.053*	(.017)
50th postremodeling week	–.000	(.011)	–.078**	(.020)
Control Variables				
Construction period	.002	(.015)	–.155**	(.024)
Promotion	.032**	(.005)	.048**	(.009)
Public holiday	.024**	(.006)	.020	(.011)
School vacation	.009	(.009)	–.031	(.016)
Adjusted R^2	.999			

*$p < .05$ (all tests are two-sided).
**$p < .001$.
[a]Because the dependent variables are in log form, the parameter estimates can be interpreted as percentage changes in average customer spending or store traffic.

function values of k(t) and m(t) can be interpreted as percentage changes in average spending and store traffic, respectively. We find that the changes in average customer spending and store traffic are remarkably different.

For average customer spending (Figure 1, Panel A), we observe a significant short-term increase that disappears in the long run, in line with the response pattern hypothesized in H_1 and H_2. Specifically, average customer spending increases significantly ($p < .05$) between Weeks 7 and 22 after the remodeling, by a maximum of 4.4% in Week 14. Indeed, between Weeks 7 and 22, 0 does not fall within the confidence interval. However, in the long run (starting six months after the remodeling, approximately Week 27), average spending per customer returns to the baseline, and the observed effects are no longer significant, in line with adaptation-level theory. Overall, the trajectory of spending effects is similar to the patterns of our cognitive and behavioral intention measures, which suggests that these measures are useful predictors of customers' actual in-store behavior.

Store traffic exhibits a substantially different pattern (Figure 1, Panel B). In contrast with average spending, store traffic does not change significantly in the short run. Unexpectedly, it even declines in the long run, resulting in a significant dip in Weeks 37–54. Although store traffic recovers again toward the end of our observation period, these results offer an important warning for companies that plan to use remodeling to improve their store patronage. A possible explanation is that the store remodeling triggered persistent negative effects as some customers switched to other stores during the remodeling and continued this behavior afterward. Alternatively, the remodeling might have elicited reactance against the new servicescape among consumers who felt deprived of their freedom to visit their familiar store (Brehm and Brehm 1981). In the short run, these negative effects might have been compensated for by positive curiosity effects in other customer segments, such that the negative impact only emerges in the long run.

The results for store traffic are not in line with H_1 and H_2 but support our expectation that the remodeling effect on store traffic is lower than that on average spending (H_5). One-sided t-tests indicate that from Week 8 to Week 26 and from Week 37 to Week 54, the difference between the percentage impact on store traffic and that on average spending is significant ($p < .05$).[9]

Validation

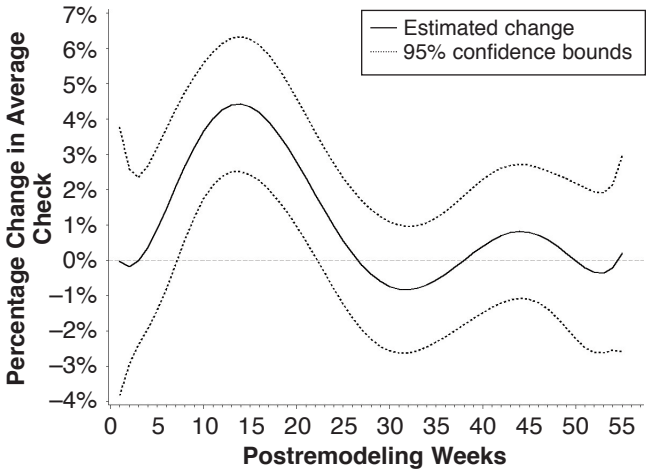
One crucial finding of our analyses is that short-term remodeling effects wear off over time, in line with adaptation-level theory. To validate this result, we (1) analyze revenue data from 18 stores, (2) conduct a laboratory study, and (3) gather qualitative insights.

Revenue analysis. We analyze weekly revenue data from 18 restaurants (including the two stores of our main

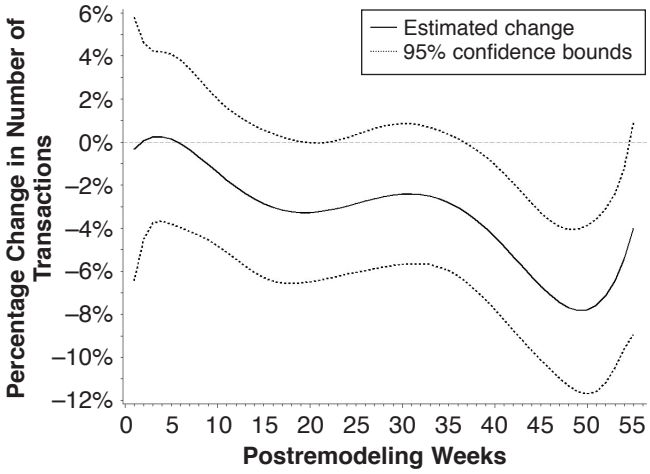
[9]Because in each week the difference between spending and store traffic effects is a linear combination of the estimated parameters of the polynomials, we can derive the difference's standard error from the variance–covariance matrix of those parameters und use this standard error in the t-test.

FIGURE 1
Effects of Remodeling on Store Performance

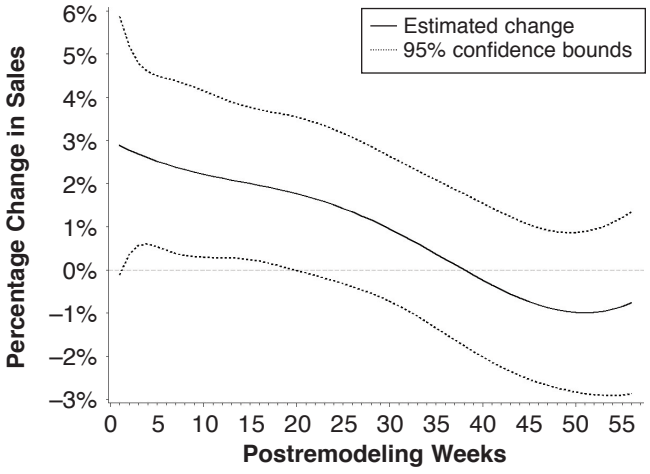
A: Effects of Store Remodeling on Average Customer Spending



B: Effects of Store Remodeling on Store Traffic



C: Validation: Effects of Store Remodeling on Revenue (18 stores)



study), covering the same 92 weeks as the data in our main study. Of the 18 restaurants, 6 were remodeled. For each remodeled store, we include 2 control stores to obtain reliable estimates of the baseline revenue (Shadish, Cook, and Campbell 2002). To select these control stores, we use the same matching criteria (post hoc) used in our main study. We model revenue as an exponential function, identical to the functional forms of AS_{it} and ST_{it} in Equations 1 and 2. As we did previously, we control for the effects of promotions, vacations, holidays, and the remodeling period; include store-specific intercepts; and accommodate the dynamic effects with sixth-degree polynomial time functions (which resulted in the highest adjusted R-square). We include six baseline polynomials, one for each treatment restaurant and its two control stores, to capture revenue fluctuations not due to the remodeling. Finally, we add a polynomial to assess incremental changes as a result of the remodeling, pooled across the six treatment stores.

To save space, we do not report store intercepts, baseline patterns, or the effects of the control variables. In Figure 1, Panel C, we portray the estimated remodeling effects, along with a 95% confidence band for up to 56 weeks after the remodeling.[10] Revenue significantly increases by 2%–3% ($p < .05$) during the first 20 weeks but then returns to its normal level, lending extra support to the relevance of adaptation-level theory for the context of servicescape remodeling.

Lab study. To validate the adaptation mechanism more explicitly, we conducted a computer-based lab study comparable to the study by Russell and Lanius (1984), who also examine environmental adaptation-level effects. One hundred ninety-seven student respondents watched a two-minute video clip of a visit to the remodeled store that provided a realistic impression of the new store design. After watching the clip, respondents completed a five-point single-item scale that measured their general impression of the store environment. In addition, they provided sociodemographic information and indicated whether they usually visit a restaurant with a new (n = 91) or old (n = 106) store design. In an analysis of covariance in which we control for gender (all students belong to the same age category), we find that respondents rate the remodeled design shown in the video clip significantly higher ($p < .01$) when they usually visit a store with the old, as opposed to the new, design. That is, people who are already familiar with the new store environment use a higher standard to evaluate the new environment because they integrate their prior experience with the new servicescape into their adaptation level.

Qualitative insights. To further substantiate the adaptation-level rationale, we collected spontaneous reactions to the remodeled servicescape from 91 students who participated in a computer-based lab study. Respondents first saw a slide show of the new store design and then wrote down their thoughts and perceptions of the store environment, provided sociodemographic information, and indicated whether they usually visit a restaurant from this chain with the new (n = 43) or old (n = 48) store design. Three independent coders content-analyzed and classified the responses. The results indicate 644 pairwise agreements out of a total of 801 possible, resulting in an interjudge agreement of .80. The proportional reduction in loss reliability measure is greater than .97, which leaves us fairly confident about our judges' classification.

Table 4 presents the counts and percentages for response categories mentioned by more than 5% of the respondents. While several associations with the remodeled store are mentioned by both new-store and old-store visitors (e.g., "modern/trendy," "clean," "child-friendly," "fast food"), we observe notable differences. Respondents who usually visit a remodeled store mention "standard," "familiar," "typical," "recognizable," or "normal" much more often than respondents who usually visit a nonremodeled store. In addition, new-store visitors typically refer to "design" in general, while old-store visitors emphasize the newness of the design and are much more likely to find the new design modern or trendy. Thus, in general, respondents' unaided thoughts support the adaptation-level explanation.

Discussion

Main Findings and Theoretical Implications

In this study, we used a natural experiment in a fast-food chain to investigate the effects of store remodeling on customers' cognitions, affect, and behavioral intentions and on actual store performance. Our findings, which we summarize in Table 5, contribute to servicescape literature in at least three ways. First, whereas prior literature has not addressed the temporal effects of changes in the ser-

TABLE 4
Respondents' Unaided Thoughts in Reaction to the Remodeled Servicescape

Category	Count	%
Evaluation by Respondents Who Usually Visit Stores with the Old Design		
Modern/trendy	35	73
New interior design	22	46
Clean	13	27
For children/child-friendly	12	25
More of a restaurant and not fast food	10	21
Fat/unhealthy food/low quality	8	17
Fast food	7	15
Evaluation by Respondents Who Usually Visit Stores with the New Design		
Modern/trendy	24	56
Design	22	51
Clean	19	44
Standard/familiar/typical/recognizable/normal	13	30
Nice environment/nice atmosphere	12	28
Fast food	11	26
Colors, colorful	10	23
For children/child-friendly	9	21

[10]These results rely on observations for all six remodeled restaurants. Any estimated effects after the 56th week only pertain to two restaurants for which a longer postremodeling time span was available because these restaurants were remodeled earlier in the observation period. These effects are somewhat more erratic but not significant.

TABLE 5
Summary of the Main Findings

Short- versus long-term effects (H_1 and H_2)	•Store remodeling has a short-term impact on cognitive (perceived value, store image) and behavioral measures (loyalty, desire to stay, word-of-mouth), but not on affective measures.
	•Short-term remodeling effects lose strength in the long run, in line with adaptation-level theory.
Moderating effects (H_3 and H_4)	•Spontaneous visits tend to lead to greater remodeling effects than planned visits, especially in the short run (e.g., perceived value, overall satisfaction, word-of-mouth communication).
	•Customers in a group tend to respond more positively to a store remodeling than single customers, especially in the long run (e.g., perceived service quality, overall satisfaction, word-of-mouth communication).
Effects on customer spending versus store traffic (H_5)	•The remodeling effect on store traffic is less than that on average spending.
	•In line with H_1 and H_2, average spending increases in the short run but returns to the baseline in the long run.
	•Store traffic does not change in the short run and even shows a dip in the long run.

vicescape, we disentangle the short- and long-term effects of store remodeling and present adaptation-level theory as an important theoretical concept for studying changes in the servicescape over time. Most of our short-term results provide real-life validation of previous laboratory experiments that reveal consumers' positive reactions to an attractive store environment (e.g., Baker, Grewal, and Parasuraman 1994). For example, we observe positive short-term effects on cognitive measures, such as store image, and behavioral intentions, such as word-of-mouth communication. However, in line with adaptation-level theory, the positive short-term effects tend to lose strength in the long run (i.e., after six months) as the remodeled store becomes the new frame of reference.

Second, our research is one of only a few studies that shed light on the interaction between servicescape effects and store visit characteristics. Our results indicate that customers who visit the store spontaneously are typically more receptive to the influence of the remodeling than are customers who planned their visit. Furthermore, customers who visit in groups tend to respond more favorably to the remodeled servicescape than single customers do. Previous work has found contagion effects between employees and customers (e.g., Hennig-Thurau et al. 2006); our findings suggest that similar mechanisms may exist among customers in the context of a remodeled servicescape.

Third, servicescape research traditionally has investigated consumer responses upon exposure to the store environment, but this singular reliance on in-store reactions may generate an incomplete picture of the likely effects on store performance. We observe that customer spending, which occurs in the store, exhibits a response pattern similar to those of most of our survey measures: It increases shortly after the remodeling and returns to the baseline in the long run. In contrast, store traffic is less prone to the influence of the servicescape because the decision to visit the store naturally occurs outside the store. Store traffic remains unaffected by a remodeled servicescape in the short run and even indicates a negative effect in the long run. Perhaps the remodeling period interrupts habitual behaviors and makes some people identify and switch to other stores. Alternatively, remodeling may trigger reactance effects among certain consumers who deliberately stay away. In any case, this finding warrants further research.

Finally, beyond these three main contributions, two additional findings deserve attention. First, though tapering over time, the remodeling impact on store image and desire to stay remains significant in the long run. Both constructs are likely to benefit directly from the improvements in store perception, which, as shown in our manipulation test, remain significant across time. Similarly, our qualitative study (see Table 4) suggests that even consumers who are already familiar with the remodeled store (and therefore describe the new servicescape as "standard," "typical," and so forth) still appreciate the "nice environment" and refer to it as "modern" and "trendy."

Second, the affective responses of the average customer (overall satisfaction, encounter satisfaction, and attitude) remained unaffected by a store remodeling in both the short and long run. These findings could indicate that satisfaction and attitude depend more on the entire consumption experience to which other variables (e.g., product characteristics) contribute to a greater extent than the servicescape (Szymanski and Henard 2001). Another plausible explanation may be that the new servicescape improved the dining experience but also raised expectations (see Sharma and Stafford 2000). In an expectation–disconfirmation framework, satisfaction and attitude would stay at their preremodeling levels, because expected and experienced performance increased to the same extent (cf. Bitner 1992). Thus, although customer satisfaction is often used as a proxy for store performance, it cannot always tell the entire story.

Managerial Implications

General implications for marketing and store managers. At least in the short run (i.e., within six months after a remodeling), managers can use store remodeling to improve store image and value perceptions. Remodeling also may induce behavioral responses, such as longer store

visits, increased spending, greater loyalty, and more word-of-mouth communication. However, our findings entail several caveats for managers considering a remodeling of their servicescapes. First, we warn against a myopic approach to store remodeling. If firms fail to realize that customer reactions lose strength in the long run, they may overstate the total impact of the remodeling. Therefore, companies should thoroughly investigate possible remodeling effects over time before rolling out new store designs. However, techniques that consider only short-term effects appear popular in practice. For example, Office Depot used secret laboratory stores to develop and evaluate its Millennium 2 store concept, admitting that "only time will tell how successful these efforts will be in the eye of the customer" (Jeffries and Eisenberg 2005). The personal computer manufacturer Gateway pilot-tested its new store design in mid-2003 and then completed the remodeling of all its stores just three months later (Goliath 2003). Our findings indicate that it is more appropriate to assess performance in one or more pilot stores for a relatively long period. In our focal industry, fast-food restaurants, an observation period of approximately one year seems warranted.

Second, our results imply that the impact of remodeling may vary across industries. Remodeling may lead to greater effects in retail sectors in which store visits tend to be rather spontaneous, such as card and gift stores, compared with sectors in which planned visits prevail, such as supermarkets. In addition, remodeling may be more rewarding for industries in which customers often are part of a group, such as cafés, but less so for industries in which customers come alone, such as cybercafés. In a similar vein, our results indicate that not all stores in a chain will benefit equally from remodeling. For example, a chain of coffeehouses rolling out a new store design may give priority to a Main Street store that attracts small parties of consumers who spontaneously interrupt their shopping trips for a coffee break rather than to a store that caters to commuters who pick up their regular morning coffee on their way to work.

Third, although customers spend more shortly after a store makeover, store traffic might not increase. Therefore, companies should apply other marketing tactics to stimulate consumers to come in and, once exposed to the new servicescape, spend more money. This finding creates an interesting trade-off: Providing incentives to visit the store, such as coupons, lures consumers into the store but also causes them to plan their visit (Kahn and Schmittlein 1992), which may decrease the impact of the servicescape. In this respect, mass advertising may be more appropriate because it increases store awareness without necessarily affecting the nature of store visits.

Implications for franchisor–franchisee relationships. In the fast-food and many other service industries, franchise chains represent the largest share of total sales (Michael 1999). As we show, our results also have implications for the relationships between franchisor and franchisees. Specifically, the interests of these two parties in the remodeling may not align perfectly, which is consequential for the allocation of remodeling costs.

For the franchisor, who receives royalties on the franchisees' gross revenues, positive remodeling effects on store revenues generate extra proceeds. We find that store revenues increase by up to 3% in the first months after the remodeling. For the treatment store in our main study, which has close-to-average baseline revenues, the percentage effects translate into a cumulative revenue increase of approximately €28,000. For a chain of some thousand stores and a typical royalty of 10% (Michael 1999), the incremental income thus would represent a few million euros. Other benefits for the franchisor cannot be expressed directly in terms of revenues. For example, the chain might use store remodeling to boost image in the short and long run. Indeed, we find that the initial impact on store image, though it tapers off, remains significant in the long run. Such improvements in store image may help franchisors solidify their position in the market and generate financial payoffs in the very long run (for which our analysis does not account). A significant remodeling also could be an important signal to shareholders that underscores the company's commitment to customer relevance, which may lead to increased stock prices.

In contrast, franchisees seek to maximize the profits of their individual stores and want to recoup any investment within a reasonable amount of time (Gogoi, Arndt, and Moiduddin 2006). To evaluate the gains from remodeling, franchisees consider both incremental store revenues and savings in maintenance costs (e.g., chair replacement, wall redecoration). For example, in addition to a revenue increase of €28,000, the treatment store in our main study realized annual maintenance savings of about €4,000, at least in the first few years after the store redesign. If we assume a food cost of 25% (common for this business) and ignore discounting, the gross return on a five-year basis would be $(1 - .25) \times €28{,}000 + 5 \times €4{,}000 = €41{,}000$. In this way, individual franchisees can derive their maximum willingness to contribute to the remodeling effort. Because absolute remodeling effects depend on the store's baseline revenues, this willingness to contribute will vary greatly across stores.

Thus, we recommend careful and store-specific allocations of remodeling costs. For the remodeling program we studied, franchisees shouldered the lion's share of the costs, typically a multiple of the estimated increases in store profits. If the franchisor wants to speed up the rollout of the remodeled servicescape, it could identify costs that it can shift to the franchisee while ensuring there is a clear incentive for the franchisee to implement the new design. Moreover, the franchisor should make franchisees aware of effects that are more difficult to quantify, such as the long-term implications for store image. Remodeling also can have a positive impact on employee behavior, leading to greater productivity and lower turnover (see Parish, Berry, and Lam 2008), or it may serve as an entry deterrent that lowers the expected profits of a rival firm considering entry into the market.

Limitations and Further Research

Because this work represents a first study of the effects of a remodeled servicescape, ample opportunity remains for further research. First, field experiments have their own limitations, the most important being that it is not possible to con-

trol all factors. Although we carefully selected the stores and tried to avoid extraneous influences, we cannot completely rule out confounding effects of the environment. Furthermore, a field experiment involves only one specific setting. For the sake of generalizability, studies should examine whether our findings hold for other remodeling projects, and in contexts other than fast-food restaurants. The impact of store remodeling may be more persistent in fashion-oriented or upscale stores or in industries in which the servicescape forms the core of the service offering (e.g., hotels).

Second, although the results of our lab studies and qualitative analysis support the adaptation-level rationale, there may be other reasons for the waning remodeling effects. For example, the positive remodeling effects may diminish over time as the new store design loses its initial cleanliness. Further research might validate this and other explanations.

Third, researchers might examine interactions between store remodeling and other variables. Additional work could investigate whether remodeling effectiveness is moderated by other marketing interventions, such as altered product offerings or advertising. It may also be worthwhile to include other store visit characteristics. Research might explicitly distinguish between hedonic and task-oriented store visits (Kaltcheva and Weitz 2006), particularly to investigate the extent to which these motivations drive the observed differences for spontaneous versus planned and group versus single-customer visits.

Fourth, although we assess remodeling effects at different levels (cognitive, affective, and behavioral), another model could explicitly distinguish consecutive decision stages (e.g., awareness, consideration, trial, consumption, and postconsumption evaluation) and measure remodeling effects on each. Such an analysis could add conceptual and managerial insights. For example, if the impact on consideration appears greater, marketing efforts should focus on converting this increased consideration into trial.

Fifth, researchers could decompose store traffic and revenue effects to clarify the underlying mechanisms. For store traffic, it would be helpful to decompose the effects in changes in visit frequencies and changes in the size of the customer base. To this end, researchers could obtain average visit frequencies from customer respondents and compare the frequency distributions between stores and across time. Store traffic effects that cannot be attributed to changes in visit frequencies would be due to an expansion of the customer base. As for revenue, panel data would enable researchers to track individual customers over time and split the effects into revenues generated by new customers (after remodeling) and those from existing customers (see Sloot, Fok, and Verhoef 2006).

APPENDIX A
Examples of Changes in Studied Servicescape

Servicescape Characteristic	Before	After
Ambience		
Lighting	Lighting before included sterile, bright, neon lights.	The new interior servicescape has a contemporary, warm lighting scheme including dimmed lights and spots to highlight paintings, the entrance to the restrooms, and special constructions like a pillar in the middle of the restaurant. Better, clearer light is used in the counter area and for the menu displays, and shutters in front of five windows create a cozier atmosphere.
Color schemes	The walls inside were white, the chairs were a beech color. The tables were grayish blue, the ceiling was white, and the floor was a speckled off-white. The outside walls were white and had three blue stripes and blue skirting. The roof was red.	The walls are now dark brown and gray, the chairs auburn, gray, off-white, and ocher. The tables are now yellow and dark brown, the ceiling is gray, and the floor has a light terracotta color; some parts of the floor are highlighted in gray and yellow. The outside walls are now orange, the roof is gray, and the fence is silver.
Space/Functionality		
Layout	The old store consisted of one large room and a children's corner. Tables were set apart by wooden flower boxes.	In the new design, the store is divided into distinct zones such as the "flexible" zone for everyone or the "grab and go" zone that features tall counters with bar stools for customers who eat alone.
Furnishing	The previous furniture included traditional chairs and bench seats.	In the new design, there are a variety of seating options, including higher benches, chairs, bar stools, and cantilever chairs. Instead of wooden chairs and cloth, the new servicescape furniture features leather seats and stainless steel.
Signs, Symbols, and Artifacts		
Paintings	The old design featured white walls with wainscots on the lower part. The walls also contained a few abstract and lighthouse paintings that had no relation to the store or the color schemes.	The new paintings assimilate the same colors as the rest of the store (yellow, gray, brown, red). The paintings display famous landmarks or landscape shots in an abstract way.

APPENDIX B
Results of CFA

Response Measures	Standardized Factor Loadings*
Cognitive Responses	
Perceived Value (Cronin et al. 1997) (SB corrected r = .78, CR = .76)	
1. _____ offers good service for the price.	.77
2. _____ makes me feel that I am getting my money's worth.	.81
Perceived Service Quality (Hightower, Brady, and Baker 2002) (SB corrected r = .76, CR = .76)	
1. Overall, I have received high quality service at _____.	.76
2. Generally, the service provided at _____ is excellent.	.81
Store Image (Graeff 1996) (α = .68; CR = .71)	
How would you describe the image of this _____ restaurant?	
1. Modern/old-fashioned (reversed)	.37
2. Dull/interesting	.57
3. Unsophisticated/sophisticated	.81
4. Economical/extravagant	.68
Affective Responses	
Overall Satisfaction (Bitner and Hubbert 1994) (SB corrected r = .64, CR = .62)	
1. Based on all my own experiences, I am satisfied with _____'s services.	.70
2. Compared to other fast-food restaurants I have been to, I am satisfied with _____.	.65
Encounter Satisfaction (Bitner and Hubbert 1994) (SB corrected r = .91, CR = .92)	
1. I feel delighted about my service experience today.	.93
2. I am satisfied with today's service experience.	.91
Attitude (Day and Stafford 1997; Muehling, Laczniak, and Stoltman 1991) (SB corrected r = .83, CR = .83)	
How would you describe your general feelings toward _____?	
1. Good/bad (reversed)	.83
2. Positive/negative (reversed)	.81
3. Favorable/unfavorable (reversed)	.72
Behavioral Intentions	
Loyalty (McMullan 2005; Zeithaml, Berry, and Parasuraman 1996) (α = .75, CR = .80)	
1. I consider myself a loyal customer of this _____ restaurant.	.78
2. I consider _____ as my first choice when selecting fast-food.	.53
3. I consider myself a loyal customer of _____ in general.	.85
Desire to Stay (Hightower, Brady, and Baker 2002; Wakefield and Blodgett 1996)(SB corrected r = .83, CR = .82)	
1. I enjoy spending time at this _____.	.85
2. I like to stay in this _____ restaurant.	.82
Word-of-Mouth Communication (McGregor 2006; Reichheld 2003; Zeithaml, Berry, and Parasuraman 1996) (α = .87, CR = .84)	
1. I am likely to say positive things about this _____ restaurant to other people.	.75
2. I am likely to recommend this _____ restaurant to a friend or colleague.	.74
3. I am likely to say positive things about _____ in general to other people.	.79
4. I am likely to encourage friends and relatives to eat at _____.	.74

*All (free) loadings are significant at the $p < .001$ level (two-sided).
Notes: SB corrected r = Spearman-Brown corrected correlation, and CR = composite reliability. Model fit: $\chi^2(213) = 1747.54$, $p < .01$; CFI = .98; TLI = .97; NFI = .97; and RMSEA = .055.

APPENDIX C
Results of MANCOVA: Impact of Remodeling on Servicescape Perceptions

	Estimated Interaction Coefficients (STORE × WAVE)[a]		
	Short Term		Long Term
Servicescape Perception	**2nd Wave**	**3rd Wave**	**4th Wave**
In general, the environment pleases me.	1.297***	1.864***	1.457***
The external appearance is welcoming.	.730***	1.247***	.846***
The interior design is contemporary.	1.121***	1.680***	1.358***
The furniture inside the restaurant appeals to me.	1.281***	1.913***	1.512***
The furniture outside the restaurant is appealing.	.387*	.841***	.516**
The physical facilities are comfortable.	1.206***	1.581***	1.134***
The restaurant has more than enough space for me to feel comfortable.	.670***	.834***	.678***
I like the interior layout of this restaurant.	.681***	.911***	.614***

APPENDIX C
Continued

	Estimated Interaction Coefficients (STORE × WAVE)[a]		
	Short Term		Long Term
Servicescape Perception	2nd Wave	3rd Wave	4th Wave
The wall decorations are fashionable.	.920***	.947***	.837***
The atmosphere is warm.	.359*	.474**	.922***
The lighting is comfortable.	.119	.223	.195
The colors of the exterior are pleasing.	.281	.752***	.403*
The colors of the interior are pleasing.	.858***	1.177***	.861***

*$p < .05$ (all tests are two-sided).
**$p < .01$.
***$p < .001$.
[a]These coefficients capture the extent to which the difference in perceptions between the treatment and control store increases (+) or decreases (–) compared with the wave before the remodeling. For example, a coefficient of 1.297 in Wave 2 indicates that the difference in perception between the treatment and control store increases by 1.297 compared with Wave 1.
Notes: Wilks' $\Lambda = .895$, $F(39, 8031.6) = 7.830$, $p < .001$, partial $\eta^2 = .04$.

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