Let Your Workspace Speak For Itself: the Impact of Material Objects on Impression Formation and Service Quality Perceptions

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Let Your Workspace Speak for Itself: The Impact of Material Objects on Impression Formation and Service Quality Perception

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ABSTRACT

Inspired by studies exploring the role of material objects in impression formation, the impact of personal and professional objects on person perception and service quality evaluation were investigated in a healthcare setting. Results showed that material objects affect service quality perceptions through a cognitive route, incorporating office professionalism and perceived competence of the physician, and through an affect-driven route, incorporating attractiveness of the office, agreeableness of the physician and experienced affect. In healthcare services, this affect-driven route seems to be of particular importance.

INTRODUCTION

Among consumer researchers, environmental psychologists, and marketers it is well established that products and material objects present meanings beyond their appearance and function; people surround themselves with possessions that express and reinforce a personal identity (Belk 1988). Schlenker (1985) assumed that by creating and altering their environments, people may try to display a more glorified picture of themselves. Not only do we use objects as a means for self-expression, but other people use such information in everyday settings to form impressions of what occupants of specific environments, e.g., houses or offices, are like (Gosling et al. 2002).

In order to explain the mechanisms through which individuals impact their personal environments and the ways in which observers draw inferences about occupants of such environments, Brunswik (1956) proposed his ‘lens model’. In his view, physical objects in the personal environment can serve as a lens through which observers perceive underlying constructs such as the occupant’s interests, personality or values. A framed picture of a happy family in an office, for instance, can serve as a lens ‘through’ which an observer perceives the occupant as empathetic or warm. Similarly, an observer may infer from a baseball hat on a cabinet that the occupant is interested in sports. Naturally, observers will try to attend to those cues that are most accurate in conveying the true identity of the target person.

The degree to which people attend to environmental cues is likely to vary with the type of setting. Particularly in novel or ambiguous situations, i.e., situations in which standardized scripts or clear-cut information are lacking, people are likely to form impressions, judgments and perceptions based on objects present in the physical environment (Kay et al. 2004). In order to reduce uncertainty, resulting from the absence of clear-cut information, customers are likely to attend to aspects of the tangible environment (Verhoeven, Pieterse, and Pruyn 2006). In services marketing literature, uncertainty is often assumed to vary with information verifiability. In credence services, dominant attributes cannot be verified by the average consumer (even after purchase and consumption), because (s)he lacks the technical expertise or the means to make a reliable assessment, or because claim verification would take an unrealistically long time (Darby and Karni 1973; Zeithaml 1981). It can be argued, therefore, that the effects of the physical environment on impression formation are more pronounced for services characterized by low information verifiability (i.e., credence services) than they are for services with high information verifiability (i.e., experience services).

Although the significance of environmental cues in commercial (Turley and Milliman 2000) and healthcare settings (Dijkstra, Pieterse, and Pruyn 2006) is well established, less is known about the effects of particular objects and the processes underlying this type of impression formation. Do objects in a doctor’s office, for instance, primarily affect us on an affective level or do they first and foremost impact our cognitions? To provide an answer to these questions, we employed an experimental design, using simulations of service environments, to study the effects of two types of objects commonplace in offices: objects relevant to the profession of the occupant and objects expressive of personal tastes and interests. It is our contention that these types of objects are particularly influential with respect to ratings of doctors on perceived competence and perceived friendliness or empathy: attributes referred to as ‘hard’ and ‘soft’ respectively (Driver and Johnston 2001). Since these constructs are considered primary determinants of service quality perceptions (Driver and Johnston 2001), we will also assess the relative contributions of these attributes on perceived quality of care. Before elaborating on our design, however, we will discuss studies that have explored the role of specific types of objects in organizational contexts.

THEORETICAL BACKGROUND

Several studies have assessed the role of overall office design on perceived traits of office occupants (Cherulnik and Sounders 1984; Tedeschi and Melburg 1984). Cherulnik and Sounders (1984), for instance, showed that occupants of high-status offices are judged as more neat, critical, sincere, intelligent, proud, responsible, ambitious and less superstitious, gullible, lazy and noisy than occupants of low-status offices. Of particular interest to our present purpose are studies that have explored the role of particular objects using experimentally manipulated slides of offices (Campbell 1979; McElroy, Morrow and Wall 1983; Morrow and McElroy 1981). Morrow and McElroy (1981), for instance, showed that the presence of status symbols (e.g., diplomas) led to higher ratings on occupants’ achievement orientation and rank. They further found that friendliness, extroversion and feelings of welcome in office settings in part relate to the arrangement of furniture, mirrored in an ‘open’ (desk against the wall) or ‘closed’ (desk between occupant and visitor) setup (Morrow and McElroy 1981).

Although in these studies the effects of specific kinds of objects or set-ups were studied, environmental cues are not perceived in isolation; rather, their combined effects give rise to a holistic image that shapes subsequent consumer experiences, comprising both affective and cognitive components (Bloch 1995). In this process, observers ’transfer’ perceived characteristics of the physical environment to the occupant. Clearly, design aspects of offices can, in line with the needs of office occupants, convey different ‘messages’ (Ornstein 1989). People may in some situa-

1The authors gratefully thank Johan Jonker, Albert Polman and Dr. Job van der Palen for their assistance in developing the panorama photos.
tions desire to be looked upon as high-status or powerful (hard attributes), but at other times as involved, caring or friendly (soft attributes). Arguably, office professionalism impacts perceptions of physicians in terms of hard attributes whereas office attractiveness shapes perceptions of physicians in terms of soft attributes. With respect to financial services, e.g., a bank, it may be crucial (from a managerial point of view) to foremost foster impressions of competence or professional success, whereas our choice for a general practitioner may sooner be based on perceptions of the personnel’s friendliness or involvement.

This process of impression formation has been shown to play a particularly important role in Service Quality appraisal (Grove and Fisk 1989). As services are actions or performances rather than products, in the eyes of customers the employees delivering the service are the service (Zeithaml, Bitner, and Gremler 2006). As a result, the evaluation of the service hinges on the consumer’s impression of the service provider. A similar line of reasoning holds that services are hard to evaluate due to the specific characteristics (i.e., intangibility, heterogeneity, simultaneous production and consumption and perishability), and that therefore customers form expectations about the quality of service based on their impressions of the organization and the employees (Parasuraman, Zeithaml and Berry 1985). Several studies indicate that emotions arising from interactions with personnel and the environment (Mehrabian and Russell 1974) shape such expectations and are thus critical factors in the appraisal of service quality (Chebat, Davidow, and Codjovi 2005; Laroche et al. 2005). In line with these studies, we propose that affect positively influences perceived service quality. The foregoing discussion leads us to propose the conceptual model depicted in Figure 1.

FIGURE 1
A conceptual model of cognitive and emotional effects of material objects

<table>
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<tr>
<th>Professional vs. Personally expressive Objects</th>
<th>Cognitive Appraisal of the Environment:</th>
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<td>Perceived Service Quality</td>
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METHOD

Pretest

To make an informed decision regarding the selection of stimulus materials for our study, a pretest was conducted among 54 students (13 males, 41 females; mean age 19.7) of the University of Twente. They were instructed to carefully watch 10 pictures of objects commonplace in a physician’s office and imagine what a male physician with the displayed object in his room would be like. For each of the 10 pictures, they were asked to rate the personality of the physician on a 39-item personality scale. The questionnaire consisted of the 35 items in the Big Five personality questionnaire (Goldberg 1992) and some traits typically relevant for physicians: ‘professional’, ‘expert’, ‘reliable’ and ‘involved’. For each of the 39 traits, participants indicated on a nine-point scale to what extent they considered these applicable to the physician. Each participant rated 10 pictures. In total, 20 pictures of objects were tested.

Exploratory factor analysis was conducted on the 39 personality traits. Based on the total explained variance and the interpretability of the factor structure, a five factor solution was adopted. An examination of the terms composing each factor led to naming them as follows: Competence (e.g., professional, responsible, intelligent; $\alpha=.95$), Agreeableness (e.g., warm, kind, involved; $\alpha=.91$), Extraversion (e.g., energetic, talkative, assertive; $\alpha=.90$), Emotional stability (e.g., calm, relaxed, at ease; $\alpha=.83$) and Creativity (e.g., imaginative, creative, curious; $\alpha=.73$). On the whole, this factor structure resembles the structure reported by Goldberg (1992). However, some traits of the original intelligence factor (‘intelligent’, ‘analytical’ and ‘reflective’) and some of the added items (‘professional’, ‘expert’ and ‘reliable’) loaded on the conscientiousness factor, broadening the meaning of the factor to ‘competence’. For this study, only the first two factors, deemed most important, will be discussed and elaborated on.

Out of the 20 objects, the six objects that received the highest scores on competence were selected for the professional condition: scientific articles, a medical illustration, professional books, a framed master’s certificate, a mockup of lungs and a mockup of respiratory organs. The six objects that scored highest on agreeableness were selected for the personally expressive condition: a miniature ship, African sculptures, toy cars, a speaker set, a soccer team shawl and a decorative hat. Interestingly, objects receiving...
high scores on competence received low scores on agreeableness and vice versa: a physician displaying a professional object was judged as more competent (t=16.38, p<.001) and less agreeable (t=6.09, p<.001) than a physician displaying a personally expressive object.

In addition, participants were asked to rate four scenarios in order to check the verifiability manipulation (i.e., the degree to which a procedure can be evaluated after its completion). Based on these results, a ‘credence’ scenario (describing a procedure that cannot be evaluated after service delivery) and an ‘experience’ scenario (describing a procedure that can easily be evaluated) were selected. Participants indicated that, after the treatment, they were better able to evaluate the success of the ‘scar treatment’ (the experience scenario) than the success of the ‘Hepatitis B treatment’ (the credence scenario) (t=11.57, p<.001). Both scenarios are presented in the next section.

**Design and Procedure**

A two (professional vs. personally expressive objects) x two (experience vs. credence service) scenario design was employed for the purpose of this study. All 81 participants were individually invited into the research lab. The instructions and scenarios were displayed on a computer screen and read as follows:

**Scar treatment (experience condition):**
A scar on your cheek has been bothering you for quite a while. Now you really want to have it removed, so you decide to call for an appointment with a doctor. Not knowing what to expect, you search for information on the Internet. As it turns out, you will be able to evaluate the result of the surgery right after the procedure. At the time of the appointment you check in at the hospital. As the physician is not quite ready to see you yet, an assistant takes you into his office and asks you to wait. While waiting you take a good look at the physician’s room.

**Hepatitis B treatment (credence condition):**
You’ve recently paid a visit to a blood bank for the very first time. They tested your blood on several diseases. As it turns out, you are suffering from Hepatitis B, an infection of the liver. You never noticed anything and you don’t know what needs to be done. You decide to call for an appointment with a doctor. Not knowing what to expect, you search for information on the Internet. You learn that you won’t be able to evaluate the result of the intervention after the procedure since you did not, and will not, have any noticeable symptoms. At the time of the appointment you check in at the hospital. As the physician is not quite ready to see you yet, an assistant takes you into his office and asks you to wait. While waiting you take a good look at the physician’s room.

Prompted by the instructions, participants next explored a QuickTime 360 degree panorama photo of a room containing either the professional objects or the personally expressive objects (see Figure 2). Using the mouse, participants were able to control speed and angle of presentation. After 70 seconds, the view switched to a 6-second movie presentation of a doctor stepping into the office apologizing for the wait. Subsequently participants were asked to fill out the questionnaire.

**Measures**

To assess the impact of the experimental manipulation on participants’ impressions of the physician, participants were asked to rate his personality on a computer-administered 39-item personality questionnaire (identical to the one used in the pretest). In line with the results from the pretest, exploratory factor analyses revealed the same factorial structure. Cronbach’s alphas for the five factors ranged from .71 for Creativity to .94 for Competence.

The cognitive evaluation of the service environment was measured using a 13-item environmental appraisal scale, including the 10-item environmental appraisal scale (Bitner 1990) and the items ‘appearing friendly’, ‘comfortable’, and ‘clean’. Two factors emerged from an exploratory factor analysis conducted on these items: Professional (e.g. efficient, organized, professional; α=.82) and Attractive (e.g. pleasant, attractive, comfortable; α=.92). The emotional response was assessed with a 6-item pleasure scale (Mehrabian and Russell 1974). This scale proved to be one-dimensional and reliable (α=.93). An adjusted SERVQUAL questionnaire (Parasuraman, Zeithaml, and Berry 1988) was used to determine the evaluation of the service (α=.93).

**RESULTS**

Analysis of variance showed that participants in the professional condition rated the office as more professional (Mprofessional=5.18) in comparison to participants in the personally expressive condition (Mpersonally expressive=4.67, F(1, 79)=4.09, p<.05, η²=.049). However, the office manipulation did not have a direct effect on perceived physician’s competence (F(1, 79)=.23, NS) or agreeableness (F(1, 79)=.55, NS). The office containing professional objects was judged as less attractive (Mprofessional=2.76) than the office containing personally expressive objects (Mpersonally expressive=4.67, F(1, 79)=7.41, p<.01, η²=.086). Consistent with the latter finding, participants in the professional condition reported to have less positive emotions (F(1, 79)=5.97, p<.04, η²=.070), and a lower perceived service quality (F(1, 79)=7.26, p<.01; η²=.084) than participants in the personally expressive condition. Contrary to our expectations, none of these effects were qualified by the experience-credence manipulation.

To better understand the relationship between these variables, Structural Equation Modeling was used to test the theoretical model. The direct and indirect effects were estimated by means of path-analysis using Amos. The model shown in Figure 3 has a very good fit (χ²(10)=14.45, p=.15, CMIN/df=1.45, GFI=.96, TLI=.96, CFI=.98, RMSEA=.075). All relationships are significant at p<.05.

Not surprisingly, a positive relationship (β=.35) exists between the objects in the office and perceived professionalism of the office, indicating that the office containing professional objects is perceived as more professional than the office containing personally expressive objects. The negative relationship between the objects in the office and perceived attractiveness (β=-.29) implies that the office in the personally expressive condition is perceived as more attractive than the office in the professional condition. However, the object manipulation accounts for only 9% of the variance in office attractiveness.

A direct relationship emerges between the two dimensions of service environment appraisal, suggesting that office attractiveness is a significant predictor of office professionalism (β=.45). Office professionalism in turn strongly affects the degree to which the physician is perceived as competent (β=.64), whereas office attractiveness strongly affects the perceived agreeableness of the physician (β=.48). In line with our predictions, these results indicate that observers indeed project specific attributes of the environment onto the physician. It should be noted that, as was the case with the environmental attributes, the physician’s personality traits are not unrelated: perceived agreeableness affects perceived competence (β=.25).

The emotional experience is greatly affected by both the perceived attractiveness of the office (β=.70) and to a much lesser degree by the perceived agreeableness of the physician (β=.25).
These two variables account for 73% of the variance in emotion. The significant relationship between perceived physician’s competence and perceived service quality ($\beta=.33$) confirms our hypothesis that consumers evaluate service quality based on their impression of the service provider. The attractiveness of the service environment also directly affects service quality evaluation ($\beta=.28$).

**DISCUSSION**

The results of this study confirm our hypotheses about particular types of objects in a healthcare setting, thereby further advan-
ing our understanding of the ways in which environmental factors impact consumer experience. Although research assessing effects of ‘interior design on consumers’ responses are not new, many studies suffer from a lack of experimental control, making it hard to demonstrate relations between specific types of environmental stimuli and consumer experience.

The presented model suggests two different response ‘routes’ in consumers’ evaluations of service encounters: a cognitive ‘hard’ route through which the physician’s competence is assessed, and a more affect-laden ‘soft’ route centered on perceived friendliness or agreeableness (c.f., Driver and Johnston, 2001). Perceived competence was shown to be primarily affected by professionalism of the office, and thus dependent on the presence of profession-related objects. Perceived friendliness, on the other hand, was shown to be primarily affected by the attractiveness of the office. Thus, offices containing objects expressive of personal tastes and interests were perceived as more attractive and elicited a more positive emotional response in comparison to offices containing profession-related objects. Interestingly, these findings are in line with findings reported by Pruyrn and Smidts (Pruyrn and Smidts 1998) indicating that perceived attractiveness of waiting rooms in healthcare settings primarily impacts consumers’ emotional response. These combined findings corroborate our assumptions that perceived attractiveness can be considered a soft attribute whereas perceived professionalism constitutes a hard attribute.

Perceived competence of the physician turns out to be an important predictor of perceived service quality. Attractiveness of the environment and perceived agreeableness of the service provider influence perceived service quality indirectly through experienced affect. The importance of such soft attributes is further underscored by the positive relation between office attractiveness and office professionalism, indicating that soft attributes also impact hard attributes. In literature, the relative importance of hard and soft attributes with respect to service quality appraisal is expected to vary with the type of service (Cronin and Taylor 1994; Parasuraman, Zeithaml, and Berry 1994). As one would expect, in high anxiety and high contact services, soft attributes play a greater role in service quality appraisal than hard attributes. For this reason, participants generate more favorable expectations with respect to service quality in the personally expressive condition than in the professional condition.

Contrary to our expectations, the effects of objects were not moderated by information verifiability. Although information verifiability was successfully manipulated, the scenarios may have failed to generate differences in perceived uncertainty. After all, it is this experienced uncertainty (arising from low information variability) that is expected to moderate the effects of the environment on service provider- and service quality evaluation. Another explanation relates to the fact that most consumers are unfamiliar with (technical) procedures in healthcare services, the outcome of which will always be somewhat uncertain. As such, healthcare services in general carry predominantly credence characteristics. Although it was clear in the experience scenario that the outcome could be evaluated after the treatment, no information regarding the outcome of the scar treatment was given, and the two service encounters might not have been distinctive enough along the verifiability continuum.

The ecological validity of our study was increased by simulating the office using QuickTime 360 degree panoramas rather than ‘standard’ photos and by introducing the target of impression formation (i.e., the physician) by means of a short movie presentation. In doing so we hoped to portray a realistic service encounter. In bringing physician and environment together (as is the case in ‘real life’), an interesting avenue for future research opens up. That is, in addition to investigating the impact of the physical environment on person perception, it would also be of interest to study the impact of person characteristics on environmental appraisal and consequent service quality appraisal. Variations in person characteristics such as age or self-assuredness may prompt consumers to attend to different aspects of the environment or lead them to evaluate environmental factors differently in terms of cue validity (Brunswick, 1956). The impact of profession-related objects (communicating competence), for instance, may vary depending on the degree to which the physician is perceived as confident or insecure; status symbols may trigger an image of high standing for an elderly man radiating confidence, whereas adverse effects may be anticipated if the office is occupied by a young inexperienced person.

Finally, our results are of interest in the light of recent findings in priming research. As Kay et.al. (2004) have shown, objects can subconsciously influence people’s behavior and evaluations. Future research will have to address the question to what extent and under what conditions (sub-)conscious processes underlie the effects of objects in servicescapes. With respect to healthcare settings, for instance, one could argue that soft (i.e., affect-related) attributes are activated without consumers being aware of the relevant influence, whereas awareness is needed for observers to draw conclusions about hard attributes. But regardless of how, and under what conditions, objects impact consumer experience, present research demonstrates the importance of attending to physical objects in service settings and the messages they convey.

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