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# Visual Methods: Using Photographs to Capture Customers' Experience with Design

Mellie Pullman

*Portland State University*

Stephani K. A. Robson

*Cornell University, skr4@cornell.edu*

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# Visual Methods: Using Photographs to Capture Customers' Experience with Design

## **Abstract**

Traditional guest feedback methods such as surveys or mystery shopping are not ideal for collecting information about customers' reactions to a hotel's physical design. Because design is a visual medium, survey questions may not capture the whole of a guest's reaction to the design. By the same token, the reaction of mystery shoppers to design is not necessarily representative of all guests. Instead, a photography-based approach allows guests to show managers and researchers what they consider to be the hotel's design highlights and failures. A pilot study indicated that guests took notice of design elements that signified that the hotel was being considerate of their needs, as well as providing a functional, high-quality environment.

## **Keywords**

hotel design, market research, customer feedback, survey techniques, design research, photoelicitation

## **Disciplines**

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# Visual Methods

## Using Photographs to Capture Customers' Experience with Design

by MADELEINE E. PULLMAN and STEPHANI K. A. ROBSON

Traditional guest feedback methods such as surveys or mystery shopping are not ideal for collecting information about customers' reactions to a hotel's physical design. Because design is a visual medium, survey questions may not capture the whole of a guest's reaction to the design. By the same token, the reaction of mystery shoppers to design is not necessarily representative of all guests. Instead, a photography-based approach allows guests to show managers and researchers what they consider to be the hotel's design highlights and failures. A pilot study indicated that guests took notice of design elements that signified that the hotel was being considerate of their needs, as well as providing a functional, high-quality environment.

**Keywords:** hotel design; market research; customer feedback; survey techniques; design research; photoelicitation

**D**eveloping an understanding of how customers respond to a hotel's design may assist lodging firms in improving both current and future designs. In this article, we explore the use of an image-based customer feedback method and provide the

results of a pilot test at a full-service hotel. We begin by outlining current approaches to obtaining guest feedback and then examine the application of photography-based data collection methods to a wide range of research problems. A case study follows that outlines an image-based data collection approach, several different types of analysis methods, and sample findings from the pilot study. Finally, we identify the implications and limitations of using this photography-based technique in hospitality settings.

### Methods to Elicit Customer Feedback

Traditionally, hospitality services receive feedback about guest experiences through any of several approaches. Among these are written surveys, mystery shoppers, and oral formats such as focus groups or depth interviews. The choice of measurement technique depends on the objective. Typical objectives include performance assessment and benchmarking or gaining information for training and staff improvement efforts (Wirtz and Tomlin 2000). Researchers agree that most service firms could benefit from using a variety of the approaches, as we describe next (Berry

and Parasuraman 1997; Wirtz and Tomlin 2000). For a summary of commonly used methods, see Exhibit 1.

Written formats include transactional surveys, which are service-satisfaction surveys of customers following a service encounter; surveys of specific customers (e.g., customers who recently selected or are leaving the firm); and open-ended written complaints, compliments, or comments, regardless of whether they were solicited or how they arrive. Generally, surveys have questions with a Likert-type scale (e.g., 1 = *disagree* to 5 = *agree*). The advantages of this method are that it is fast and easy for customers to complete; the surveys are inexpensive and easy to analyze, facilitating measurement and comparison across business units; and the studies are amenable to large sample sizes (for example, see Gilbert and Horsnell 1998; Schall 2003; Su 2004). Surveys with large sample sizes constitute a representative and reliable method for monitoring both overall service and process satisfaction. On the other hand, survey questions are framed by the researcher and may not capture the guests' issues, answers may be constrained in such a way that the responses give no real guidance, there are few opportunities to tailor the survey to specific customers, and it can be difficult to interpret the difference in guests' assessments from one point on a scale to the next (Pullman, McGuire, and Cleveland 2005). Comment or complaint cards and open online feedback tend to focus on only those issues where customers have specific positive or negative assessments. Likewise, these may not provide a complete picture of the state of the service or guest experience.

Design-related survey questions often ask customers to rate the ambience, furnishings, or overall feeling generated by the property or staff. Increasingly, measures of emotional connection have appeared in hospitality surveys, asking subjects to rate statements such

as, "The staff makes me feel welcome" or "The hotel feels like home." While this approach gives an overview of the guests' response to service and design, it generally cannot reveal which specific design or service elements contributed to the guest's assessment without an impractically long series of detailed questions.

*Mystery shopping.* Unlike written surveys, mystery shopping can provide an in-depth analysis of a service experience, but that analysis is narrow since it is restricted to a researcher or professional who takes on the role of customer. The results of mystery shopping are typically used to improve employees' interactions with customers or to point out areas where specific processes failed to meet company specifications. In addition to relying on one person's experience, this method can be relatively expensive, limiting its frequency. Joie de Vivre Hospitality uses a modified mystery shopper approach, by having its managers from different properties perform an "experience audit" on a particular hotel to ensure that the experience-design elements are performing as intended (e.g., scented candles lit, appropriate music playing, or couches clean and cushions arranged). Whether the shopper is a manager or an outsider, the professional shopper is perceived to be more critical than the typical customer.

*Oral approaches.* Open-ended interviews or focus groups use conversational approaches that allow a small sample of customers to discuss relevant topics. Through depth interviews on a topic such as design, interviewers can flesh out consumers' responses. For example, if the guest says, "The lamp is cool," the interviewer might encourage the guest to reveal more information about what made it cool. While conversational approaches have the advantage of identifying not-so-obvious perspectives (Kwortnik 2003; Walsh 2003), interviews

**Exhibit 1:**  
Customer Feedback Collection Tools

<i>Type</i>	<i>Description</i>	<i>Advantages</i>	<i>Limitations</i>
<p>Written surveys</p> <p>Transactional surveys</p> <p>Feedback cards or online feedback system</p> <p>Total market</p>	<p>Service satisfaction survey of own or market's customers following service. Feedback is either solicited (through company materials or sites) or unsolicited (through online activities)</p>	<p>Obtain feedback while experience is fresh</p> <p>Cost-effective</p> <p>High volume (representative and reliable)</p> <p>Identify priorities, track changes, monitor service, and process satisfaction</p>	<p>Tends to focus on customers' most recent experience</p> <p>Analysis of complaints, comments, and open-ended questions offers a partial picture</p> <p>Limited interpretation of overall customer experience</p> <p>Limited voice of customer</p>
<p>Mystery shopper</p>	<p>Professionals become customers to experience and evaluate service delivered</p>	<p>Specific feedback</p> <p>Overall experience</p> <p>Actionable: Can be useful for training, performance evaluations, and strengths or weaknesses of services</p>	<p>Subjective evaluations</p> <p>Researchers more critical than actual customers</p> <p>Small sample</p> <p>Expensive per unit (time and money)</p>
<p>Verbal feedback</p> <p>Focus groups</p> <p>Customer advisory panel</p> <p>Service reviews</p> <p>Depth interviews</p>	<p>Questioning or input from customers with either specific topics or open-ended discussion format</p>	<p>In-depth and specific suggestions for improvements, feedback, possible and view of the future</p> <p>Firsthand learning</p>	<p>Expensive per unit (time and money)</p> <p>May not project to entire customer base</p>
<p>Visual feedback</p> <p>Photo "journaling"</p> <p>Photo "interviewing"</p> <p>Photo "surveying"</p>	<p>Customers use photos to describe the experience either through a journal or a depth-interview</p> <p>Alternatively, customers rank or rate photographs</p>	<p>In-depth and specific feedback</p> <p>Overall customer experience</p> <p>Actionable: Can be used for training, improvements, or benchmarking</p> <p>Firsthand learning</p>	<p>Moderate cost</p> <p>Moderate sample</p> <p>Photographic skills of customer</p> <p>Format for sending and receiving images depends on respondent's abilities</p>

and focus groups are time-consuming and require substantial qualitative data-gathering and data analysis skills.

Despite the advantages of typical customer-feedback methods, they are of limited practicality for obtaining customers' impressions about aesthetics or other design attributes. Interpreting what customers say or write about design features may be difficult, while a mystery shopper's views may not necessarily match what typical customers would notice (and the shopper may be assigned to focus on other operational aspects). In contrast, a camera-based method offers more power because it allows guests immediately to capture their thoughts and helps them remember a service experience. Therefore, for organizations that seek feedback on design decisions from a large sample of actual users, an image-based research methodology would be helpful.

### Photography-based Research Approaches

Photography is a logical extension of the long tradition of travelers illustrating their travelogues. Though not a professional photographer herself, essayist Susan Sontag (1977) wrote, for example, "It seems positively unnatural to travel for pleasure without taking a camera along. Photographs will offer indisputable evidence that the trip was made, that the program was carried out, that fun was had." As travelers select images to photograph, they have a degree of control over the tangible evidence that they bring back from their experience, and the resulting images typically spark strong memories even well after the captured event (Markwell 1996; Kenyon 1993; Haywood 1990). Images are important in communicating impressions of the physical world, and so we believe a photography-based method might be beneficial when evaluating experience design issues. Used in conjunction with language-based methods, photographic images offer a

valuable tool for assessing the guest experience in hospitality environments.

The use of photography has been explored in research relating to recreation, leisure, and tourism as well as to landscape, architectural, and urban design. Photography is also useful in marketing and new product development. For example, California-based design consulting firm IDEO used photographs and journals to evaluate consumers' use of products for its clients, which include Apple, Palm, and Procter and Gamble.

We have seen little research regarding image-based methods in hotels, resorts, or restaurants. This omission is surprising for several reasons. First, photographic images play an ever-increasing role in hospitality web sites, brochures, and other marketing tools such as the trade and popular press. Hotel web sites make frequent use of photo galleries and, in some cases, interactive photographs to allow guests to review and evaluate the property's design before making a purchase decision. Second, photographic documentation is well suited to research on guest perceptions of design because design is a visual medium, and allowing guests to provide both visual as well as verbal responses can result in richer, more informative results. Finally, although we did not ask our subjects to use their own equipment, many hotel guests commonly carry a photographic device—whether a digital camera or a cell phone—possibly making data collection simpler and more engaging for the respondent, as well as more accessible for the researcher.

We distinguish three photography-based research methodologies, namely, photo journaling, photo interviewing, and photo surveying. In part, these three techniques vary according to whether the photographs are produced by the guest or the researcher (Rose 2001). While photographs produced by a researcher or professional help ensure high-quality images, these images limit the

voice or perspective of the respondent. In much of the physical setting research, visitor-employed photography (VEP) has become increasingly popular for understanding participant experience with the environment.

Photo journaling is an approach that would be familiar to most travelers who have put together a scrapbook, slide show, or video show of a trip. Here, customers take pictures or videos of their experience and create a journal that records what or who they observed, why they took a specific image, and what the image meant to them. The researcher might structure the assignment by asking the customer to document and discuss a particular aspect of the service or product. The researcher also decides whether the photo interpretation happens during the photography (with the respondent talking into a recording device or immediately jotting down notes) or after the fact (when the respondent creates a reflective journal according to directions provided by the researcher). The determination of when the journal is created can depend on the equipment budget, context, and logistical practicality for both the researcher and participant. For example, to evaluate visitors' impressions of water features and landscape (Yamashita 2002), researchers provided the participants with either still or video cameras with a ten-second audio-recording function for each photograph. Participants were instructed to record their impressions of each image and supplement the recording with a diary for additional thoughts or opinions. Capturing interpretation and the image coincidentally is likely to result in a more accurate customer response but may be more cumbersome for customers who may find it awkward to provide much depth in their response depending on the circumstances under which the image was taken.

Photo interviewing uses photographs as the basis of a depth-interview process. The visual images open the way for deeper

reflection and discussion during the interview (Zaltman 2003). The respondent might be asked to pick out and discuss the photographs that represented the most memorable aspect of the stay. Alternatively, respondents may be asked to discuss a certain set of photos. Marisol Clark-Ibáñez (2004) demonstrated this technique with teenage children, giving a disposable camera to each of her participants and later discussing the photographs. She found that the photographs triggered new and deeper meaning for the participants than a straight interview would have provided. She also found that many scenes or places that she found unusual or beautiful were not photographed, because they were mundane for her youthful participants.

Photo surveying incorporates photos into a survey format. Here the photos can be rated or ranked according to some criterion, such as "liked best" to "liked least." These photos could be taken by a guest during his or her stay or could be professional photos of existing or potential room designs to solicit feedback on layouts and amenities. Similarly, the photos can be integrated into conjoint or choice modeling experiments to gauge the impact of the visual image and its composition relative to other salient factors such as price and location (see, for example, Verma, Plaschka, and Louviere 2002).

All of these methods might be useful tools for researchers for exploring guests' responses to hospitality environments, but to date there are no published accounts of their application for design analysis.

## Visual Data Analysis

Unlike numeric surveys, data from graphic sources are subjective and require content-based analytical methodologies. Most approaches start with some type of content analysis, similar to what is done with verbal data drawn from open-ended questions, interviews, or focus groups. Here, the researcher

devises a set of descriptive labels or categories for the images with supporting interview text. Text from respondents' written journals or interviews supports these labels, since a researcher's interpretation of a chosen photograph has the limitation that only the photographer can explain her or his own visual image and the reasons why she or he took that photograph.

For design research, it is important to know what particular element the respondent intended to photograph. For example, a photo of a bedside table with a lamp may be intended to showcase the table, the lamp, the lampshade, or some other feature, not to mention functional or aesthetic issues about the lamp that were relevant to the respondent. Therefore, the picture may be assigned both an object code (stating the main discussion point in the photo) and a meaning code (saying why this particular was photo taken). The code categories must meet the following criteria: (1) each one must be exhaustive, that is, every aspect of the images with which the research is concerned must be covered by a category; (2) they must be exclusive, that is, categories must not overlap; and (3) they must be enlightening, in that categories must be analytically interesting and coherent (Collier and Collier 1986).

Once the images are coded, the next stage is to count the number of images in each code category to produce a quantitative account of their content. Here is where traditional statistical analysis comes into play. For example, if we examine the difference in category counts between different groups (say, men and women, business travelers and leisure guests, or employees and guests), we might learn which focal points and elements create a particular type of experience for each of those groups. This analysis allows the researcher to identify any statistically significant differences between subsets of the customers and perhaps to make inferences about more appropriate design for each group.

Provided sample sizes are sufficient, accompanying the photographic data collection with a few basic quantitative survey questions can allow the researcher to relate measures of process evaluations, overall satisfaction, and loyalty to the photographic content analysis. Using this approach, researchers can determine whether the frequency of certain visual images is significantly related to outcome measures, typically using some type of regression model to assess the strength and direction of relationships between photo content and guests' quantitative responses.

Visual imagery research can potentially go into great depth with the application of techniques in semiotics, psychoanalysis, discourse analysis, and other social science approaches. This area is beyond the scope of this article but the interested reader can refer to the works of Collier and Collier (1986) or Rose (2001).

## Demonstrating Photo Elicitation

To illustrate an application of photo interviewing and survey methods along with a variety of analysis approaches, we asked a small sample of guests to participate in a photography-based survey. For this study, our specific research questions were,

- What elements of a designed environment make a significant impression on consumers?
- What types of meaning do guest infer from the visual images?
- How can images be related to other quantitative measures such as guests' overall satisfaction with the experience or intent to return? and
- What can we learn through photographs that would not have been revealed through other methods?

The study was conducted during a two-month period at a 150-room, full-service hotel in upstate New York. During the hotel's peak check-in times on Thursday and Friday



afternoons, we randomly approached fifty-two guests just after they checked in and asked them if they would like to participate in the study (two declined). The participants were provided with a one-time-use camera, a token gift, instructions, a consent form, and an information sheet to complete and return with their exposed camera. The information sheet requested contact information, demographic information (gender, purpose of stay, and length of stay), and best contact times. We also wished to test whether there were relationships between images taken and satisfaction ratings, so we also asked participants to complete a small set of satisfaction- and loyalty-scale items (see the appendix), which measured switching intentions, recommendation to others, negative word of mouth, loyalty, ambience, service, and overall satisfaction (Skogland and Siguaw 2004).

In the instructions, participants were advised to use the camera to take pictures of anything in the hotel that made an impression on them during their stay (either positive or negative). They were encouraged to photograph anywhere on the hotel property but to avoid photographing other guests (due to privacy concerns). We explained that we would develop their photographs and send a set of copies, as the basis of a one-hour phone interview. We coded the photographs that we sent, so that we could discuss each photo specifically and so respondents could rank five to ten photographs that represented the most significant aspects of their stay. All interviews used depth-interviewing technique where interviewers probed the participants for specific explanations of the images.

## Participants

From the original fifty distributed cameras, we received forty exposed cameras, and thirty-eight participants provided complete contact information and photographs. Twenty-nine participants completed the

interview. The interviewed respondents were almost equally split between men (fourteen) and women (fifteen). Half were staying for business purposes, and the other half were staying for leisure or a combination of business and leisure. The average stay for each guest was two nights. We discussed an average of about seven photos with each respondent (maximum, twelve; minimum, three).

## Content Analysis of Images

All the pictures were first classified by subject into the following three general categories: guest rooms, public spaces, and staff. Photographs of guest rooms made up the majority (65.1 percent); followed by public spaces such as lobbies, dining areas, bars, or corridors (32.4 percent); and pictures of staff (2.6 percent). The photographs were then classified into the following five categories with the guest's evaluative descriptions taken into account:

- *Design*: an element identified and planned by the architect, interior designer, or design team
- *Amenities*: an element outside the design team's scope, usually provided by the hotel operator
- *Service*: an interaction or employee-based function not related to the design of furniture, fixtures or equipment, such as maintenance, cleanliness, or friendliness
- *Setting*: Views or site issues distinct from furniture, fixtures, or equipment
- *Equipment*: mechanical systems and other nonarchitectural systems, especially those related to guest comfort such as plumbing, heating

The research team performed the classification by identifying focal themes from the photographs and descriptions (Albers and James 1988). Two experienced research team members performed the classification and obtained 87 percent agreement. They then discussed disagreements until reaching

**Exhibit 2:**  
Categories and Key Words

<i>Category</i>	<i>Key Words</i>
Amenities	Bathroom amenities, Bible, TV channel, channel guide, activities flier, information book, internet, ironing board, morning paper, robes, room amenities, convenience store, valet parking, radio/CD, hangers, door hang card
Design	Layout of space: activities board placement, mirror, elevator, entrance, foyer, hall size, room entry, empty walls, window, wires, electrical outlets Selection of FF&E (furniture, fixtures, and equipment) elements: room artwork, bathroom (fixtures, sink, tub, shower, ceiling light, door handle, phone), bed (bedding, pillows, size, spread), closet (handle, light), room furniture (chair[s], desk, armoire, nightstand, drink table, minifridge), hall carpet, lobby artwork, lobby furnishings, lamp shades, hall table, mirror, shower (control, curtain, fixtures, soap dish), television (remote, position) Feel or ambience of space: dining room, bar, lobby décor, lobby comfort, flowers, public bathroom Provision of guest support features: business center, fitness center Signage and safety: exit diagram, exit door, handrail, room number, shower instructions
Service	Attitude/approach: dining service, staff (bartender, bell staff, dining staff), breakfast and dessert buffet, departure, lobby centerpiece, pretzel, entrance Performance: dirty ashtrays, cleanliness (bathroom, hall, room), room service, toilet paper folding, bed sheet, maintenance, rollaway setup, remote control operation
Setting	View (dining room, banquet room, and guest room), night view, buildings, clock tower, location, city lights
Equipment	Air-conditioning noise

consensus on the category; the resulting classifications and key words are provided in Exhibit 2.

When ranking the images, each participant also indicated whether the picture represented a positive or negative impression. For images ranked as most positive, the category breakdown was setting (41.4 percent of the images), design (37.9 percent), service (10.3 percent), and amenities (10.3 percent). When design was not the first respondent's first choice, it dominated the

remaining top five places in the rankings. Exhibit 3 shows the breakdown of positive and negative evaluations for each category.

The analysis of the types of photograph categories in Exhibit 3 shows that significantly more positive (69.7 percent) than negative (30.3 percent) photographs were taken overall, with the majority of participants taking photographs related to design (56.6 percent) followed by amenities (17.7 percent) and service (16.2 percent). Photographs of the setting (which many consider to be

**Exhibit 3:**  
Picture Categories and Evaluation

Evaluation	Picture Category					Total
	Design	Service	Amenities	Setting	Equipment	
<b>Positive</b>						
Count	70	19	32	17	0	138
Percentage	35.4	9.6	16.2	8.6	0.0	69.7
<b>Negative</b>						
Count	42	13	3	0	2	60
Percentage	21.2	6.6	1.5	0.0	1.0	30.3
<b>Total</b>						
Count	112	32	35	17	2	198
Percentage	56.6	16.2	17.7	8.6	1.0	100.0

Note:  $\chi^2 = 24.27$ ,  $p = .000$ ,  $df = 4$ .

scenic) made up 8.6 percent of all images, and the scenery was consistently rated as representing a positive impression. By contrast, the tiny number of equipment photographs (1 percent) all garnered negative ratings.

Women generally took more positive photos of design and service than did men (38.2 percent for women and 23.9 percent for men on design, 12.7 percent for women and 10.2 percent for men on service), while men took more negative service photographs, as shown in Exhibit 4. Nevertheless, we found that neither gender took more positive or negative photos in any category on a photos-per-person basis.

Because of the substantial differences between the group sizes for purpose of stay (that is, business, leisure, and both), Exhibit 5 provides only the average number of favorable and unfavorable photos taken per person. Looking at the types of photo categories, business guests took significantly fewer negative photos of design, barely one apiece, than did either those staying for leisure (almost two each) or a combined itinerary (almost four each;  $F = 4.943$ ;  $p = .036$ ). On the other hand, business guests took significantly more negative photos of

service (about one each) than did leisure guests (who took none;  $F = 1.794$ ;  $p = .021$ ), and leisure travelers took significantly more positive photos of amenities (two apiece) than did business guests (about one apiece;  $F = 4.74$ ;  $p = .001$ ).

### Content Analysis of Explanations

For our content analysis of the text accompanying the photographs, our team assessed each image and assigned it to one of five categories based on the primary emphasis of the guests' commentary. Broadly, the categories relate to the guest's expectations, the ability of the environment to support guests' goals, and the sense of familiarity elicited by the environment. Exhibit 6 shows sample responses classified by the nature of the idea expressed. The five conceptual classifications are described below, along with illustrative images.

### Quality of Experience

"Quality of experience" refers to elements that had a substantial effect on the guest's perception of his or her stay. These

**Exhibit 4:**  
Gender and Picture Category Evaluation

<i>Gender</i>	<i>Picture Category</i>					
	<i>Design</i>	<i>Service</i>	<i>Amenities</i>	<i>Setting</i>	<i>Equipment</i>	<i>Total</i>
<b>Male</b>						
Positive (count)	28	5	14	9	0	56
Photos/person	2.0	0.36	1.0	0.64	0.00	
Percentage	31.8	5.7	15.9	10.2	0.0	63.6
Negative (count)	21	9	1	0	1	32
Photos/person	1.5	0.64	0.07	0.00	0.07	
Percentage	23.9	10.2	1.1	0.0	1.1	36.4
<b>Total</b>						
Count	49	14	15	9	1	88
Percentage	55.7	15.9	17.0	10.2	1.1	100.0
<b>Female</b>						
Positive (count)	42	14	18	8	0	82
Photos/person	2.8	0.27	1.2	0.53	0.00	
Percentage	38.2	12.7	16.4	7.3	0.0	74.5
Negative (count)	21	4	2	0	1	28
Photos/person	1.4	0.93	0.13	0.00	0.07	
Percentage	19.1	3.6	1.8	0.0	0.9	25.5
<b>Total</b>						
Count	63	18	20	8	1	110
Percentage	57.3	16.4	18.2	7.3	0.9	100.0

Note: Male,  $\chi^2 = 18.219$ ,  $p = .001$ ,  $df = 4$ ; female,  $\chi^2 = 0.338$ ,  $p = .035$ ,  $df = 4$ .

**Exhibit 5:**  
Stay Purpose and Design Category Evaluation

<i>Stay Purpose</i>	<i>Picture Category</i>					
	<i>Design</i>	<i>Service</i>	<i>Amenities</i>	<i>Setting</i>	<i>Equipment</i>	
<b>Business</b>						
Positive, photos/person	2.27	0.80	0.80 <sup>c</sup>	0.60	0.00	
Negative, photos/person	0.27 <sup>a</sup>	0.73 <sup>b</sup>	0.20	0.00	0.07	
<b>Leisure</b>						
Positive, photos/person	2.86	0.57	2.00 <sup>c</sup>	0.29	0.00	
Negative, photos/person	1.71 <sup>a</sup>	0.00 <sup>b</sup>	0.00	0.00	0.14	
<b>Both</b>						
Positive, photos/person	2.29	0.43	0.86	0.86	0.00	
Negative, photos/person	3.71 <sup>a</sup>	0.29	0.00	0.00	0.00	

a. Business negative photos of design are significantly less than either leisure or both ( $p < .05$ ).

b. Business negative photos of service are significantly more than leisure ( $p < .05$ ).

c. Leisure positive photos of amenities are significantly more than business ( $p < .05$ ).

**Exhibit 6:**  
**Issues and Example Quotes**

<i>Issues</i>	<i>Example Quotes</i>
Quality of experience	<p>The wall felt empty and I would prefer to see a piece of artwork in that space. The lamp shades are chic, stylish patterns. The warmth I felt is from the living flowers and reflection of light on both sides.</p> <p>You would expect that if you are paying \$170 per night, which is expensive that you would have a mini-fridge.</p> <p>There is a dirty room service tray in the hall, left unattended and this gives a negative impression and represents a lower quality of service.</p> <p>The maids did not appear to vacuum my room and this gives me the impression that management does not inspect the cleanliness of the rooms . . . leads me to think that everything is dirty.</p>
Functionality	<p>The bathroom floor tile and grout are ugly and dirty.</p> <p>The lamps shade, you could tell was too big. The light goes straight into your eyes when you're trying to watch TV.</p> <p>The positioning of the exit door gives the impression that it leads to the back office and can be used in case of emergency. It is confusing and does not tell you that it is the access to public phones and restaurants.</p> <p>The lobby is spacious and I can walk around with my luggage with no problem. This is the AC equipment just outside my room and it was very noisy and annoying.</p> <p>The activities board needs to be in better place, and more attraction to it. It's hard to find the meeting room and this is a weakness in all hotels.</p>
Similarity to home	<p>The remote control does not work. Throw it out!</p> <p>Room number is in a frame rather than merely inscribed on the door and feels like I'm staying in a home rather than a hotel.</p> <p>The curtains provide a warm feeling, one of being at home.</p> <p>Being able to watch all of these TV channels makes me feel more like I'm at home. I wanted to curl up by the window and read a book but the chairs were skimpy . . . this counteracts the hominess I initially felt.</p> <p>I liked the presentation and taste of the pie at brunch. The taste was of home made pie, like the one I make at home.</p>
Sense of place	<p>It's a nice feature to have location-specific elements in the room; I feel like I'm there even though I was in my hotel room.</p> <p>It's nice to see the local pictures in the room; they show the connection between the place and the hotel.</p> <p>I liked the local artwork of the area . . . it made it more special; I felt like I was in a place.</p> <p>The first thing we noticed when we walked into the room was the view out the window, the steeple, hillside, and natural beauty of the surroundings.</p> <p>Having local water available is one of my favorite impressions.</p>
Evidence of thoughtfulness	<p>Free bottled water in the rooms, it's like the hotel cares about me.</p> <p>The bathroom amenities; everything that is needed and expected; another nice touch that is helpful.</p> <p>Nobody touched anything on my workspace, the housekeeper kept everything as it was; otherwise I would have felt an invasion of privacy.</p> <p>The staff took time to fold the toilet paper; the attention to detail in the bathroom met my needs.</p> <p>The flower arrangement when you first walk in, it looks like someone took their time to think that this is what belongs here.</p>

**Exhibit 7:**

"I just love flesh flowers and arrangements. These in particular make a nice focal point for the lobby. By the next morning or late, late that night they had already changed the arrangement. Not that there was anything wrong with the first ones but it was nice to see that they change them so quickly. I wanted to take a picture of the second arrangement but didn't get a chance."

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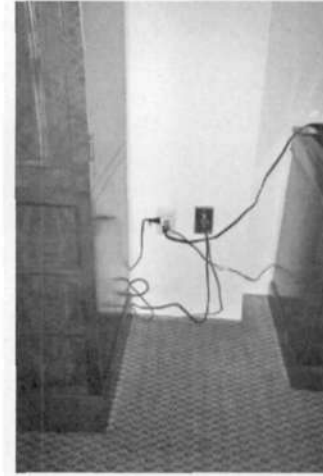


elements were not directly tied to goal attainment, but rather augmented or detracted from perceived value or the overall impression of the experience. We chose this approach to defining quality in this study because many of the images taken by guests suggested design elements that do not directly relate to the delivery of a specific service, but rather contribute to the guest's total impression of the environment and the level of services provided or implied by that environment. As illustrated in Exhibit 6, guests commonly mentioned the emotional impact of design, such as feelings of warmth, friendliness, and comfort; perceived value from design, such as comparisons to five-star properties or expected quality for the price; and perceptions of cleanliness and order.

**Exhibit 8:**

"Everything in the room is nice, such as the desk with the internet connect. But all the wires show the opposite: bad thing to the hotel. My first impression is that they didn't design the hotel well, and so they need these wires. It looks like a mess. It is just like they did what they told you not to do in a fire class."

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An example of a positive quality-of-experience element is the innovative displays of fresh flowers in public areas (Exhibit 7), while a negative example is the unattractive placement of electrical outlets (Exhibit 8). Quality-of-experience images should refer to an aspect that is separate from or beyond the purely functional, although the aspect should be expected of a four-star hotel property, such as upscale bathroom amenities or framed artwork on the guest room wall.

**Design Functionality**

In contrast to quality of experience, design functionality relates to the effectiveness of an element in terms of achieving a specific goal, in this case, the use of the

room. Images identified as reflecting functionality depicted practical elements that guests expected to be present and fully functional as part of any hotel stay at a similar property. Here the guests use language about working or function, safety, positioning and space, sound levels, and updating and modernizing, as illustrated in Exhibit 6. Examples of poor functionality include a poorly adjusted armoire door spring that prevented the guest from comfortably watching television (Exhibit 9) and a wall-mounted phone that was continually knocked off its base when the toilet was used (Exhibit 10).

### Similarity to Home

“Similarity to home” refers to elements that reminded guests of the features or amenities in their own homes or contrasted with their experiences at home. This reference could be positive (“feels less like a hotel and more like home”—Exhibit 11) or, much less commonly, negative (“seating area is skimpy and not homelike”). While there were only a small number of images in this category, we wanted to list these responses because of hotel companies’ recent efforts to create an atmosphere more in keeping with the quality of upscale guests’ homes (Chittum 2003).

### Sense of Place

“Sense of place” denotes elements that provide a sense of location, time, or culture. The term is widely used in architecture to describe environments that connect people to a specific era or geographic location using visual or contextual cues (Salveson and Shortridge 2002). Some ways that sense of place can be created include designing with local or vernacular materials, displaying artifacts of the local culture, or making a strong

### Exhibit 9:

“The armoire was nice, because you could hide the TV if you had people over, but the door must have been broken. The door spring kept causing the door to shut. We had to prop it open with a suitcase to keep it from shutting so I could watch TV. The size of the TV was nice, the armoire was nice, especially since some hotels just place the TV on the dresser, but the door was an annoyance.”



connection between the building and its site or views. More hotels are putting emphasis on creating environments that are evocative of the hotel’s location, and so the team thought it important to recognize guest responses to these efforts. In this hotel, sense of place was indicated by elements such as the view from the guest room windows

**Exhibit 10:**

"This is a picture of the handicapped bathroom and the placement of the telephone. Every time I stand up or sit down, I knock the receiver off. There are needs for the phone, so that someone can reach it. But the problem is that I keep knocking the receiver off. Maybe place it lower or more forward."

**Exhibit 11:**

"This little bureau is just inside the door to the room. The items included elements for making coffee, and the lamp was turned on. This made the room feel less like a hotel and more like home. In particular, I felt having the lamp turned on made the room especially welcoming."



(Exhibit 12) and framed artwork showing local landmarks in the guest rooms and public spaces.

**Evidence of Thoughtfulness**

"Evidence of thoughtfulness" (EOT) was categorized as indicating that the design takes into account the guest's specific needs above and beyond expectations. This idea is similar to the concept of empathy in the service-quality literature, where empathy is defined as making efforts to understand or know the customer's needs (Parasuraman, Zeithaml, and Berry 1985). In the case of visual or design elements, respondents interpret the intentions of certain design elements

as evidence that designers and hotel operators are thinking about their needs. This relationship to expectation is what classified an element as giving evidence of thoughtfulness. As shown in the Exhibit 6 examples, guests use words or phrases such as "caring," "attention to detail," "nice touches," and "recognized [my] needs."

For example, one guest noted the provision of a second soap dish in the shower stall, which made it easy to reach the soap while showering and prevented the soap from becoming soft (Exhibit 13). This attention to detail was perceived as going beyond the expected (providing a place to put soap while showering) to a much more thoughtful and considerate level. In another



**Exhibit 12:**

"This was the best part of staying at the hotel. The view was the very first thing that I noticed as soon as I went inside the room. After a long drive, the beautiful view sets a relaxing tone of the room and is a good start for an enjoyable stay at the hotel. I like sitting in the chair and looking out the window. I didn't mind being inside. You feel like you're in an actual place. It is fun watching everyone go by."

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**Exhibit 13:**

"I liked that the dish was placed in a higher position. This means that the soap will not get soggy."

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example, a female guest appreciated the padded hangers in the closet and indicated that this desirable feature is unusual in four-star hotels (Exhibit 14).

Exhibit 15 shows the relationship between the photograph types and the key issues discussed. Quality of experience is predominantly related to design photographs. Similarity to home and evidence of thoughtfulness are reflected in both design and amenities photographs. Sense-of-place issues are related only to setting photographs. By examining the issues that the participants discuss in their pictures (Exhibit 16), one can see that quality of experience (32.2 percent) and functionality (26.8 percent) are the most popular themes, followed by evidence of thoughtfulness (22.2 percent) and sense of place (14.6 percent). Similarity to home makes up the remaining 4 percent of the themes. Generally,

the themes of sense of place and evidence of thoughtfulness are discussed in positive ways, while quality of experience and functionality created almost equal numbers of positive and negative commentaries.

Looking at the gender differences in Exhibit 17, with one exception there are no significant differences between men's and women's photographs and commentaries. For both genders, evidence of thoughtfulness is generally discussed positively. On a photos-per-person basis, the only statistically significant difference is that women took more positive evidence-of-thoughtfulness photos (nearly two) while men took an average of one each (women = 1.67, men = 1.07;  $F = 6.908$ ;  $p = .014$ ).

Exhibit 18 compares issues discussed by purpose of stay. Here, the only significant difference is that leisure guests took more

**Exhibit 14:**

"Padded hangers are great amenities for knits, sweaters because it keeps shape of the clothing and protects from shape distortion of clothing."



positive photos of functionality issues, averaging nearly two apiece (1.86) than either business travelers (barely one each, 0.73), or those traveling for both purposes (0.43;  $F = 5.237$ ;  $p = .012$ ).

**Connecting Photographs to Survey Outcomes**

For our final analysis, we explored whether the types and numbers of photographs that participants took had a significant relationship with their overall satisfaction and loyalty ratings. First, we looked at the survey data alone. On the scale criteria for satisfaction and loyalty (see the appendix), women gave significantly higher ratings than men for recommending to others (6.71 vs. 5.79;  $F = 7.397$ ;  $p = .011$ ) and overall loyalty (6.00 vs. 4.31;  $F = 7.451$ ;  $p = .011$ ). Leisure travelers gave significantly higher ratings than either business travelers or those traveling for both reasons on ambience (6.71, leisure; 4.86 both;  $F = 4.558$ ;  $p = .021$ ), service (7.00, leisure; 5.57, business;  $F = 3.793$ ;  $p = .036$ ), and overall satisfaction

(6.86, leisure vs. 6.07, business;  $F = 2.307$ ;  $p = .022$ ).

Second, a principal components factor analysis with varimax rotation was run on the five outcome items (switch, recommend, NWOM-Rev [that is, negative word of mouth, reversed scale], loyal, and overall). Loyal, switch, and recommend formed one factor and accounted for 41.73 percent of the variance with good reliability ( $\alpha = .75$ ). NWOM-Rev cross loaded with overall satisfaction thus was eliminated from further analysis. Therefore, a new composite score, *loyalty*, is formed by averaging the remaining three measures.

Next, we explored whether there were significant relationships between the guests' image selection and their scale ratings. To do this, we tested six hypothetical models using stepwise regression. We looked at the relationship between *loyalty* and the two measures, service and ambience. As Model 1 shows (Exhibit 19), only the service measure was found to have a significant relationship with *loyalty* ( $r^2 = .303$ ;  $F = 6.86$ ;  $p < .01$ ). In other words, the higher the respondent rates the service, the stronger the stated *loyalty* behavior will be. Next, we looked at the relationship between *loyalty* and the five picture categories split into the number of positive and negative photographs per respondent (that is, the number of positive and negative photographs each for design, service, amenities, setting, and equipment). Model 2 indicates that only the number of negative service pictures per respondent has a significant relationship with *loyalty* ( $r^2 = .443$ ;  $F = 22.44$ ;  $p < .01$ ). That is, taking more negative pictures of service has a negative effect on *loyalty* behavior ( $\beta_{\text{service}} = -.894$ ). For the next test, we looked at the relationship between *loyalty* and the number of issues discussed in the photographs, again split into positive and negative photographs per respondent (as represented by the number of positive and negative photos each for quality of experience, functionality,

**Exhibit 15:**  
**Photograph Categories versus Issues**

Category	Issue					Total
	Quality of Experience	Functionality	Similarity to Home	Sense of Place	Evidence of Thought	
<b>Design</b>						
Count	39	41	5	9	18	112
Percentage within picture category	34.8	36.6	4.5	8.0	16.1	100.0
Percentage of total	19.7	20.7	2.5	4.5	9.1	56.6
<b>Service</b>						
Count	21	2	0	0	9	32
Percentage within picture category	65.6	6.3	0.0	0.0	28.1	100.0
Percentage of total	10.6	1.0	0.0	0.0	4.5	16.2
<b>Amenities</b>						
Count	4	8	3	3	17	35
Percentage within picture category	11.4	22.9	8.6	8.6	48.6	100.0
Percentage of total	2.0	4.0	1.5	1.5	8.6	17.7
<b>Setting</b>						
Count	0	0	0	17	0	17
Percentage within picture category	0.0	0.0	0.0	100.0	0.0	100.0
Percentage of total	0.0	0.0	0.0	8.6	0.0	8.6
<b>Equipment</b>						
Count	0	2	0	0	0	2
Percentage within picture category	0.0	100.0	0.0	0.0	0.0	100.0
Percentage of total	0.0	1.0	0.0	0.0	0.0	1.0
<b>Total</b>						
Count	64	53	8	29	44	198
Percentage	32.3	26.8	4.0	14.6	22.2	100.0

similarity to home, sense of place, and evidence of thoughtfulness). Model 3 shows that the number of negative photos concerning evidence of thoughtfulness has a negative relationship with loyalty ( $r^2 = .221$ ;  $F = 8.657$ ;  $p < .01$ ) and ( $\beta_{EOT} = -.5$ ).

For the next tests, we used stepwise regression to evaluate whether there was a relationship between the service and ambience measure and the number of positive and

negative pictures by category. The only significant relationship found was the relationship between service and the number of negative service photos taken (Model 4;  $r^2 = .506$ ;  $F = 14.802$ ;  $p < .01$ ) and ( $\beta_{EOT} = -.965$ ).

Finally, we repeated the regression from Models 2 and 3 using the overall satisfaction measure as the dependent variable. In Model 5 ( $r^2 = .393$ ;  $F = 9.729$ ;  $p < .01$ ), the

**Exhibit 16:**  
Issue Categories and Evaluation

<i>Evaluation</i>	<i>Picture Issue Category</i>					<i>Total</i>
	<i>Quality of Experience</i>	<i>Functionality to Home</i>	<i>Similarity</i>	<i>Sense of Place</i>	<i>Evidence of Thought</i>	
<b>Positive</b>						
Count	37	27	6	28	40	138
Percentage	18.7	13.6	3.0	14.1	20.2	69.7
<b>Negative</b>						
Count	27	26	2	1	4	60
Percentage	13.6	13.1	1.0	0.5	2.0	30.3
<b>Total</b>						
Count	64	53	8	29	44	198
Percentage	32.3	26.8	4.0	14.6	22.2	100.0

Note:  $\chi^2 = 32.49, p = .000, df = 4$ .

**Exhibit 17**  
Gender and Picture Issue Evaluation

<i>Gender</i>	<i>Picture Issue</i>					<i>Total</i>
	<i>Quality of Experience</i>	<i>Functionality</i>	<i>Similarity to Home</i>	<i>Sense of Place</i>	<i>Evidence of Thought</i>	
<b>Male</b>						
Positive (count)	16	9	1	15	15	56
Photos/person	1.14	0.64	0.07	1.07	1.07 <sup>a</sup>	
Percentage	18.2	10.2	1.1	17.0	17.0	63.6
Negative (count)	12	16	0	1	3	32
Photos/person	0.86	1.14	0.00	0.07	0.21	
Percentage	13.6	18.2	0.0	1.1	3.4	36.4
<b>Total</b>						
Count	28	25	1	16	18	88
Percentage	31.8	28.4	1.1	18.2	20.5	100.0
<b>Female</b>						
Positive (count)	21	18	5	13	25	82
Photos/person	1.40	1.20	0.33	0.87	1.67 <sup>a</sup>	
Percentage	19.1	16.4	4.5	11.8	22.7	74.5
Negative (count)	15	10	2	0	1	28
Photos/person	1.00	0.67	0.13	0.00	0.07	
Percentage	13.6	9.1	1.8	0.0	0.9	25.5
<b>Total</b>						
Count	36	28	7	13	26	110
Percentage	32.7	25.5	6.4	11.8	23.6	100.0

Note: Male,  $\chi^2 = 18.621, p = .001, df = 4$ ; female:  $\chi^2 = 17.412, p = .002, df = 4$ .

a. Females' positive photos of evidence of thoughtfulness/respondent are significantly more frequent than males' ( $p < .05$ ).

**Exhibit 18:**  
Stay Purpose and Issue Category Evaluation

Stay Purpose	Picture Issue				
	Quality of Experience	Functionality	Similarity to Home	Sense of Place	Evidence of Thought
<b>Business</b>					
Positive, photos/person	1.13	0.73 <sup>a</sup>	0.07	1.07	1.47
Negative, photos/person	0.73	0.20	0.07	0.00	0.27
<b>Leisure</b>					
Positive, photos/person	1.43	1.86 <sup>a</sup>	0.14	0.57	1.71
Negative, photos/person	0.57	1.14	0.14	0.00	0.00
<b>Both</b>					
Positive, photos/person	1.43	0.43 <sup>a</sup>	0.57	1.14	0.86
Negative, photos/person	1.71	2.14	0.00	0.14	0.00

a. Positive photos of functionality taken by leisure guests are significantly more frequent than those taken either business or both ( $p < .05$ ).

**Exhibit 19:**  
Regression Models

Model	Dependent Variable	Entered Variable	Adjusted R <sup>2</sup>	Coefficient and Standardized Beta
Model 1	Loyalty	Service	0.303 ( $F = 6.86^*$ )	$C = 3.585^*$ $B_1 = .706^*$
Model 2	Loyalty	Negative service	0.443 ( $F = 22.444^*$ )	$C = 6.085^*$ $B_1 = -.894^*$
Model 3	Loyalty	Negative EOT	0.221 ( $F = 8.657^*$ )	$C = 5.944^*$ $B_1 = -.500^*$
Model 4	Service	Negative service	0.506 ( $F = 14.802^*$ )	$C = 6.389^*$ $B_1 = -.965^*$
Model 5	Overall satisfaction	Positive design number, negative service	0.393 ( $F = 9.729^*$ )	$C = 5.916^*$ $B_1 = .492^*$ $B_2 = -.480^*$
Model 6	Overall satisfaction	Positive function number, positive EOT	0.242 ( $F = 5.316^*$ )	$C = 5.677^*$ $B_1 = .440^*$ $B_2 = .356^*$

Note: EOT = evidence of thoughtfulness.

\*Significant at  $p < .01$ .

relationship test between overall satisfaction and picture categories, not only is the number of negative service photographs significant ( $\beta_{\text{service}} = -.492$ ), but the number of positive design photographs is also significant ( $\beta_{\text{design}} = .492$ ). Here we see that the number of positive design photographs

taken increases overall satisfaction countered by the effect of taking more negative service photographs.

Model 6 illustrates the relationship between overall satisfaction and the number of issues discussed in the photographs. Two issues are significant in this model, those

being the number of positive functionality ( $\beta_{\text{functionality}} = .440$ ) and evidence of thoughtfulness ( $\beta_{\text{EOT}} = .356$ ) photographs.

## Discussion

The clear advantage of the photograph-based approach is that guests focused on details that might not be captured in standard surveys or comment cards. Guests who wanted to offer criticism photographed such details as a hole in the bed sheet or the poor positioning of signs. On the other hand, photographs of positive details showed that participants noticed that the hotel management was thinking about their needs.

Second, guest room design and physical settings were the most commonly photographed items, which is not surprising given the prominence of these features. Guests discover details over time and thus the longer time spent in the guest room leads to greater potential for noticing design features in these spaces. Clearly, the design of the room influenced the quality of experience and provided evidence that the hotel cared about the guests, but participants also commented on functionality. By comparing the content analysis by group type, we could determine that the "form versus function" emphasis depends on the guest's gender and travel purpose. In our case, women paid particular attention to form, interpreted here as the positive home-like attributes of design and the evidence of thoughtfulness revealed through design. This finding is consistent with previous research where women were more satisfied with hotel ambience than men were (Skogland and Siguaw 2004).

Along those lines, men paid more attention to the functionality of design and were more critical of it. According to our participants' discussion of images, though, leisure guests were more positive only about design functionality and were not significantly different from business guests in their reports of

other design attributes. Our results were again consistent with those of Skogland and Siguaw (2004), who found that leisure guests were more positive about ambience in general.

Third, by integrating the survey data with the photographic data, we were able to reveal that only the service rating has a significant relationship with loyalty behavior. The service rating also had a strong relationship with the number of negative service photographs. Here we see that the more frequently the participant focused on negative service images, particularly those images that indicated lack of evidence of thoughtfulness, the worse the service rating and subsequent loyalty score.

The overall satisfaction rating showed a similar pattern with the number of negative service photographs. On the other hand, the number of positive design photographs were associated with an increased satisfaction score. Specifically, the larger the number of photographs depicting evidence of thoughtfulness and functionality, the greater the satisfaction rating. In this study, certain aspects of design appear to influence the satisfaction level of participants but this increase does not necessarily translate into loyalty behavior. This disconnect is typical in the hospitality industry where another recent study found that only 60 percent of satisfied hotel guests do exhibit loyalty behavior (Skogland and Siguaw 2004). On the other hand, almost none of the dissatisfied guests intended to return.

## Implications for Management

As we have illustrated in our example, our method of combining photograph-based interviewing and surveying can provide insights beyond those obtained from traditional customer feedback methods. The major benefits of this approach are a potentially

richer and more effective communication channel for customer perspectives; a process for analyzing the effectiveness of a design; a clear and objective method for showing problems to employees from the guest perspective; and a more engaging and novel feedback method that is likely to be appealing to many customers, as evidenced by the strong participation rate (58 percent) we experienced with this study.

The strength of photography-based guest feedback is that the guest takes on certain aspects of a mystery shopper but is not hampered by the managerial or professional perspective. Moreover, since the information on service issues is supported by the customers' photographs and their own words, the information may be easier than a written mystery shopper report for employees to receive and act on (for example, the broken armoire door). Additionally, the cost of a disposable camera and interview are substantially less than hiring a professional to evaluate a hotel stay, which can be as much as \$500 per stay. The ease and apparent appeal of the data collection method may allow a wider sample of guests to perform the photo exercise, increasing the ability to generalize the results to a wider population. Along similar lines, photo-based methods can supplement the customer complaint and comment cards by providing an easier and yet more detailed format for guests to convey their concerns to both management and employees.

As a further strength of the approach, the photographs illuminate the physical elements that made an impression on guests during their stay. Seeing and hearing the customers' reactions to design benefits the management in the day-to-day management of a hotel operation and the designers in developing hotel rooms and public spaces. Many designs seem not to reflect the typical customer's actual needs

for use of the space (Norman 2004). Applying the findings from photography-based customer feedback studies early during the design process can improve the final design. Designers can incorporate into their plans such features as accessible but screened electrical outlets, convenient and flattering lighting, and well-positioned shower controls and make informed decisions about product sizes, finishes, and features for furnishings and fixtures.

Hotel management can also apply findings such as the ones in this study to develop a stronger sense of how customers perceive their environments and use this knowledge to make amenity-related decisions. The fact that guests appear to be paying close attention to design elements suggests that smart hoteliers might offer guest room amenities like padded hangers, in-room CD players, and complimentary bottled water. Service concerns that caught guests' attention, such as poorly functioning cabinet doors, mildew buildup on grout, and used room service trays can help guide hotel operators in planning day-to-day operational strategies.

While in this study we performed a relatively deep analysis to evaluate the potential for a connection between photographic content and guests' satisfaction and loyalty, in general the analysis of photographic data is relatively simple and easily understood. Managers can quickly identify key issues and areas for improvement. Beyond that, when photographs are supplemented with interviews or other means for annotating the images, managers can interpret precisely what customers are thinking and how that might be translated into better design.

## Conclusion and Future Research

Understanding the consumer perspective on design and the implications for satisfaction

and loyalty is crucial for hotel developers and managers. Design is an important attribute in consumer decisions (Postrel 2003; Norman 2004). Because design is a visual medium, it lends itself to photography-based data collection more readily than typical survey- or comment-based feedback. In this exploratory study, we have shown the wide range of ideas and issues that can be revealed through the technique. However, there were certain limitations with this specific study which provide opportunities for future research outlined below.

First, there can be an issue of taking photographs in public spaces, especially with regard to the privacy of other people. In our case, guests tended to photograph many things in the guest room and far fewer in the public spaces of the hotel. Taking photographs in some public spaces can be embarrassing for respondents (if the presence of a camera draws unwanted attention), and the act of taking pictures of other customers and employees can be offensive to some. For these reasons, the method might be better suited to collecting data about responses to the guest room.

We used disposable cameras for this study, but they proved problematic in several respects. Many participants were not familiar with the flash function on these cameras, resulting in many poor, unusable images. Making duplicate prints and mailing them to participants was time-consuming and costly. As an alternative, participants could use their own digital cameras or cell phone cameras to capture images. Then, rather than make prints for follow-up interviews, the guest might upload and annotate digital images to a web site, along the lines of [hotelchatter.com](http://hotelchatter.com), [flickr.com](http://flickr.com), and [\[.com\]\(http://.com\). Using personal digital cameras or camera phones may also encourage participants to take more images in spaces outside the guest room, since cell cameras particularly are in common use in many places. This issue is particularly salient when using this method for collecting data in public environments, such as restaurants, theme parks, and cruise ships. A further study to investigate the practicality of digital photography and web annotation would be helpful in evaluating the potential of this variation on our approach.](http://tripadvisor</a></p></div><div data-bbox=)

Finally, this study had a limited sample size, similar to other qualitative studies that have used physical photographs and telephone interviews (Clark-Ibáñez 2004; Yamashita 2002). With this small sample size, it was relatively easy to handle physical photographs and conduct telephone interviews. For larger photography-based studies, digital submissions and web- or computer-based interviews would increase the feasibility and analysis of larger sample sizes (for example, see Pullman, McGuire, and Cleveland 2005). Integrating a photo-sharing site with online survey and interviewing capabilities would simplify the process immensely.

The results presented here illustrate the strengths and possibilities of photography-based customer feedback methods for understanding consumers' responses to design. While images alone are insufficient to tell the complete story, the combination of the visual and the verbal provides a rich source of information. As a methodology, photography-based feedback offers managers and researchers with an additional tool for connecting with customers and learning what they think.



## Appendix

### Satisfaction Scale

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Please check the most appropriate option with  
1 = strongly disagree to 7 = strongly agree

---

Switch	As long as I travel to this area, I do not see myself switching to a different hotel.
Recom	I would highly recommend the hotel to my friends and family.
NWOM	I am likely to make negative comments about the hotel to my friends and family.
Loyal	I consider myself to be a loyal guest of the hotel.

---

Please check the most appropriate option with  
1 = very dissatisfied to 7 = very satisfied

---

Amb	The ambiance in the hotel (interior design/décor).
Service	The quality of the service offered by the hotel.
Overall	Overall, how satisfied are you with the hotel?

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**Madeline E. Pullman**, Ph.D., is an associate professor of operations management at the School of Business Administration at Portland State University (mpullman@pdx.edu). **Stephani K. A. Robson**, M.S., is senior lecturer of hospitality facilities and operations at the School of Hotel Administration at Cornell University (skr4@cornell.edu).