Seeing the Voice of the Customer: Metaphor-Based Advertising Research

Gerald Zaltman
Robin Higie Coulter

BLANK PAGE

GERALD ZALTMAN

AND

ROBIN HIGIE COULTER

SEEING THE VOICE OF THE CUSTOMER: METAPHOR-BASED ADVERTISING RESEARCH

GERALD ZALTMAN
Joseph C. Wilson
  Professor of Business
  Administration
Harvard University

Although improvements in traditional quantitative and qualitative research techniques have enhanced our ability to collect timely, valid, and reliable data, and to analyze these data with greater insights, advertising practitioners continue to search for and experiment with alternative methodologies. We offer seven basic premises for improving advertising research and copy development and then introduce the Zaltman Metaphor Elicitation Technique, ZMET. ZMET is designed to surface the mental models that drive consumer thinking and behavior and characterize these models in actionable ways using consumers, metaphors. We suggest that ZMET is a promising means for improving advertising research.

ROBIN HIGIE COULTER
Associate Professor
  of Marketing
University of Connecticut

Improvements in traditional quantitative and qualitative techniques have enhanced our ability to collect timely, valid, and reliable consumer data and to analyze these data with greater insight. Many of these improvements are rooted in advances in the electronic capture of information, in new statistical procedures, and in greater computational capacity. However, despite these advances, significant challenges persist in understanding consumers, thoughts, feelings, and behaviors. In particular, market research methods need to improve in ways that:

1. Provide deeper understanding about consumers as a basis for advertising and other marketing-mix decisions.
2. Do a better job of eliciting latent and emerging needs.
3. Provide better guidance for capturing consumers, attention and further engaging their thought processes.
4. Help codify and organize nonverbal data better.
5. Facilitate the presentation of findings by researchers in ways that more closely resemble the end products their clients must develop, e.g., visual advertising.

These needed improvements are nowhere more evident than with the development of effective advertising copy. This important task requires copy developers and the intended audience for advertising copy to share the same understanding about the ad message. For an audience to process and understand a message and then contemplate purchase, the message must capture rational and emotional meanings which comingle at multiple levels of thought (Damasio, 1994). The message must also resonate not only with surface knowledge but also with deeper meanings associated with the topic of interest. Thus, developing effective copy requires research methods that open windows into the

consumer's mind and that access relevant rational and emotional issues and their interplay. Although many quantitative and qualitative methods are useful in understanding how to communicate with existing and potential customers, advertising practitioners continue to search for and experiment with alternative methodologies.

Our purpose is to introduce the Zaltman Metaphor Elicitation Technique, ZMET, a patented research tool designed to (1) surface the mental models that drive consumer thinking and behavior, and (2) characterize these models in actionable ways using consumers, metaphors. ZMET uses consumers, visual and other sensory images and employs qualitative methods to elicit the metaphors, constructs, and mental models that drive consumers, thinking and behavior. Quantitative analyses of the data provide information for advertising, promotions, and other marketing-mix decisions. Before we proceed with a fuller description of ZMET, we briefly discuss several challenges facing advertising researchers and then provide seven basic premises for improving advertising research.

Challenges Facing Advertising Researchers

Consumers, lives are becoming more complex. Their needs and states of mind are changing more frequently, they are faced with more and more options concerning products and services and delivery systems, and nonpurchase-related demands are vying for their attention. Thus, many consumers are experiencing a time famine as they attempt to deal with their needs, sort out their purchase options, and attend to multiple responsibilities.

One consequence of this time famine is that it is increasingly

difficult for advertisers to capture consumers, attention and information-processing time. Getting consumers, attention increasingly requires managers and advertisers to have deeper understanding about consumers so that they have a richer foundation for building creative communication strategies and executions. Deep insights are also a source of competitive advantage (beyond their value in stimulating creativity) because they are usually less commonly available to one's competitors.

. . . important opportunities to learn from consumers are missed by ignoring nonverbal channels of communication as part of the research process.

While technological advances have made traditional research techniques more useful, consumers, voices are still constrained, for example, by the issues and questions framed by survey designers and focus-group moderators and by the manner in which consumers are allowed to respond. Additionally, the framework in survey research and in most qualitative techniques is verbo-centric, i.e., it is primarily, if not exclusively, oriented around words, particularly in their narrow, literal sense. This imposes another important constraint--incomplete communication from consumers--since most human communication is nonverbal. Thus, important opportunities to learn from consumers are missed by ignoring nonverbal channels of communication as part of the research process. Heavy reliance on verbo-centric techniques narrows

the cognitive peripheral vision of both researchers and their clients.

Traditional qualitative techniques still pose problems when codifying and quantifying how consumers think about a firm's offerings and how marketing communications affect consumer responses. A manifestation of this problem occurs in communications between researchers and their clients such as advertising creative staffs and product designers. The language of traditional research is almost exclusively verbal (including quantitative symbols). Creative staffs, on the other hand, must generally communicate with consumers using nonverbal and especially visual cues. Thus there is often a mismatch between the verbocentric data collection and reporting language researchers commonly use and the nonverbal, multisensory languages advertisers and others must use to communicate effectively with consumers.

Hence, there is a need for a method that elicits consumer information via multisensory channels. This method would have the advantage of increasing researchers, understanding of consumers, thoughts, feelings, and behaviors as related to their products and services. Additionally, researchers would be able to better communicate with their clients who, in turn, could produce more creative advertising and promotional materials to tap consumers, mental models.

Seven Basic Premises for Improving Advertising Research and Copy Development

Before presenting ZMET as a response to these challenges it is useful to review several premises with strong support in the social and biological sciences and in the

humanities. These interrelated premises are underutilized bases for improving our capacity to understand the voice of the consumer. Research methods rooted in these premises are more likely to elicit valid and usable market information, especially for communication purposes.

Most Communication Is Nonverbal. The first premise is that most human communication is nonverbal (Burgoon et al., 1989; Knapp, 1980; Seiter, 1988; Weiser, 1988; Mehrabian, 1971; Birdwhistell, 1970). One of the classic works on nonverbal communication is Edward T. Hall's The Silent Language which identifies 10 primary message systems involved in human communication. Only one system--interaction--and then only part of that system involves verbal language. All other systems involve nonlinguistic forms of communication (Hall, 1959).

Although no formal research provides direct documentation, the rule of thumb among communications specialists is that about 80 percent of all human communication is nonverbal. Much of the meaning of verbal language also is determined by nonverbal cues (Poyatos, 1993). Moreover, when there is an apparent contradiction, nonverbal cues tend to be believed over verbal ones (Knapp, 1980).

The growing understanding of the role of all basic senses in learning and communication processes reinforces the assumption that nonverbal communication is dominant (Montagu, 1986; Stoller, 1989; Howes, 1991). An important part of this understanding is the growing knowledge of the role of interactions (called synesthesia) among sensory modalities in our "making sense" of our world (Marks, 1978; Classen, 1993). It is also of significance that verbal language developed only recently in the context of human evolution and written language developed even more recently. Thus, the human brain did not evolve to favor verbal functions, especially not written communication functions. Rather, emphasis was placed on the elaborate production of nonverbal channels of communication. (For an interesting perspective on this see Fincher, 1976; Glucksberg, 1988; and Synnott, 1991.) This is not surprising since most stimuli reaching the brain are nonverbal and most mental images people use in daily life are visual (Kosslyn et al., 1990).

It is important to add that nonverbal communication includes paralanguage, or the tone, pitch, and other speech qualities that determine whether we literally mean what we say (generally not) or just the opposite or even something else (Gibbs, 1994). Paralanguage can in fact be very subtle with major differences in meaning being conveyed quite effectively by different subtleties (Poyatos, 1993). Literal verbal language is certainly important and the task facing market researchers is how to deal with both verbal and nonverbal language more effectively.

Thoughts Occur as Images. Thoughts typically occur as nonverbal images even though they are often expressed verbally. Thus the way in which thoughts occur may be very different from the way in which they are communicated. Consider the following two insights. The first is provided by neurobiologist Antonio R. Damasio (1994):

[Brains] still have no mind, if they do not meet an essential condition: the ability to display images internally and to order those images in a process called thought. The images are not solely visual; there are also sound images, olfactory images, and so on.

The second insight comes from Steven Pinker (1994), director of the Center for Cognitive Neuroscience at MIT. He notes that contrary to popular wisdom, thoughts are merely couched in words when it becomes necessary to convey them to others:

Is thought dependent on words? . . . The idea that thought is the same thing as language is an example of what can be called a conventional absurdity . . . there is no scientific evidence that languages dramatically shape their speakers, way of thinking.

Thus a second premise is that thoughts are images, and only infrequently verbal images. Consequently, it is important to enable consumers to represent their images in nonverbal terms, thus bringing researchers "closer" to the state in which thoughts occur and thus able to learn more about them. Although verbal language is an indispensable part of this process, it is linked directly with specific nonverbal images. The combination of verbal language and nonverbal images (in contrast to verbal language only or even primarily) helps consumers convey to researchers deeper and more varied internal representations or meanings.

Metaphors as Essential Units of Thought. The third premise is that metaphors are the key windows/mechanisms for viewing consumer thought and feelings and for understanding behavior. "The essence of a metaphor," according to Lakoff and Johnson, "is understanding and experiencing one kind of thing in terms of another" (1980). For the most part, it is only through their

metaphors that we can understand consumer thinking and behavior and thus learn how to develop and market goods and services successfully. Even behavior and thoughts are themselves metaphors for one another. In fact, there is an emerging consensus that metaphors are the essential units of thought and of communication (Ortony, 1993).

Metaphors are not only ways of hiding and expressing thoughts, they actively create and shape thought. We cannot know anything unless it is perceived as an instance of one thing and not another (Lakoff, 1987). Thought is more inherently figurative than it is literal (Gibbs, 1994). Consequently, by paying more attention to the visual and other sensory metaphors customers use to express their images, researchers can learn more about their thoughts and feelings.

Sensory Images as Metaphors. A fourth premise is that our senses provide important metaphors. The senses are ". . . the gates and windows to the mind, through which all new information passes; so that there can be no thoughts, ideas, conceptions in our head that do not derive originally from our experience of surface stimuli impinging on our bodies" (Humphrey, 1992). Accordingly, sensory-based metaphors are potentially important devices for understanding consumers, thoughts and behavior. Current thinking in several fields that cognition is grounded in embodied experience supports the salience of sensory images as metaphors (Johnson, 1987; Gibbs, 1994; Damasio, 1994; McAdams and Bigand, 1993; Varela et al., 1991).

Many metaphors are mental images and, as discussed, the majority of these images are visual (Arnheim, 1969; Kosslyn et al., 1990). One means by which indi-

Often, important stories are latent or hidden and surfacing them is a special challenge for researchers.

viduals can communicate their visual metaphors is via pictures, for example, photographs, pictures in magazines, drawings, or artwork. Pictures typically represent basic concepts and therefore are useful tools for understanding consumers, thoughts, feelings, and behaviors. Pictures, then, can serve as entry points for exploring other consumer concepts and represent a natural and efficient way for consumers to convey higher order constructs (Weiser, 1988; Ball and Smith, 1992). Some clinical psychologists use a client's photographs as a central part of the therapeutic counseling process (Entin, 1981; Krauss and Fryrear, 1983; Weiser, 1988), and art therapy has a long tradition as a clinical tool. Thus, as researchers, it appears that accessing visual as well as other sensory (e.g., tactile, auditory) images would provide useful insights into consumers, thoughts, feelings, and behaviors.

Mental Models as Representations of Stories. A fifth premise is that consumers have mental models which represent their knowledge and behavior. An integral part of this premise is that ". . . the major processes of memory are the creation, storage, and retrieval of stories" (Schank, 1990). Stories, of course, are metaphors for knowledge. They provide the relationships between constructs and as such can be captured by researchers and displayed as diagrams. These diagrams represent

mental models which are the interrelated ideas (concepts or constructs) held by an individual or group about a market experience. Often, important stories are latent or hidden and surfacing them is a special challenge for researchers.

A mental model of consumer thinking contains the dominant constructs (factors, variables) that drive consumer thought and action. However, knowing only the constructs is like knowing what cities one would like to visit without having an itinerary and road map for going from one to the other. The connections among constructs represent the reasoning processes whereby one construct affects another. These reasoning processes are the most fundamental and important units we can have for segmenting markets. Moreover, knowing how constructs interact via various reasoning mechanisms allows us to know which constructs might be the best vehicles for influencing others and which constructs might be affected unintentionally by efforts to influence other constructs.

A challenge for managers is to animate to bring to life appropriate stories or mental models among consumers. Since stories are metaphors for knowledge and often describe one's reasoning process, specific metaphors are important sources of insight about consumers. Specific metaphors are also laden with symbols and imagery that might be used creatively in implementing decisions that will animate or bring appropriate reasoning processes and mental models to life. It is important, therefore, to have a research tool that identifies or elicits the imagery consumers use to tell their stories.

Deep Structures of Thought Can Be Accessed. All consumers have relevant conscious

thoughts that they need special help in articulating. Additionally, all consumers have relevant hidden thoughts: ideas they are not aware of possessing but are willing to share once discovered. A sixth premise is that these hidden or deep structures can be accessed. A variety of techniques such as those used in art therapy, and especially phototherapy, can be very effective in surfacing such thoughts (Weiser, 1993; Ziller, 1990).

> What a person notices [in a picture! will always mirror the inner map that she or he is unconsciously using to organize and understand what the senses are perceiving (Weiser, 1993).

The Comingling of Reason and Emotion. A seventh premise is that it is both more accurate (from a neurological standpoint) and more productive (from a copy development standpoint) to consider emotion and reason as forces which comingle. Hence as deep thought structures are surfaced, we must consider reason and emotion together rather than stressing one over the other. Consequently we need techniques that elicit both, particularly when they are linked to one another (de Sousa, 1987; Varela et al., 1991).

Framework for Understanding Sensory Perception and Thinking

These premises and still other research suggest that abstract thought is grounded in the senses (Arnheim, 1969; Danesi, 1990; Classen, 1993; Humphrey, 1992). In fact, the world of thought is modeled in terms of the world

of sensation: ". . . thinking takes place in the realm of the senses" (Arnheim, 1969). An unconscious cognitive process maps the physiology of sensory perception onto abstract thinking. Abstract thought, then, is necessarily an extension of sensory experience.

Figure 1 presents, in a necessarily approximate "as if" way, the connection between sensory perception and concepts. Sensory perceptions are transformed into images which, in turn, are translated into metaphors which describe these images. The metaphors are then mapped onto abstract thought and/or specific concepts. This is a process known as bottom-up processing in which information flows from small perceptual pieces to larger ones (Goldman, 1986). Abstract thoughts are stored in memory and are connected to specific concepts as we engage

in thinking. There is also a top-down processing of information. In this case, existing concepts and abstract thought stored in memory influence our images and metaphors (image schema) which, in turn, influence what sensory stimuli we perceive and how we do so. Thus higher level perceptions influence the interpretation of lower level, sensory perceptions (Goldman, 1986).

Because metaphors reveal our thoughts, and shape them as well (Black, 1993), metaphorizing may even be the central or most elemental creative force of the imagination and hence can be a source of ideas. Since human thought appears to be metaphorbased (Danesi, 1990; Ortony, 1993), it is not surprising that mental models are best elicited and understood through metaphors, especially visual metaphors. Importantly,

Figure 1
Mapping of Sensory Perceptions onto Abstract Thought
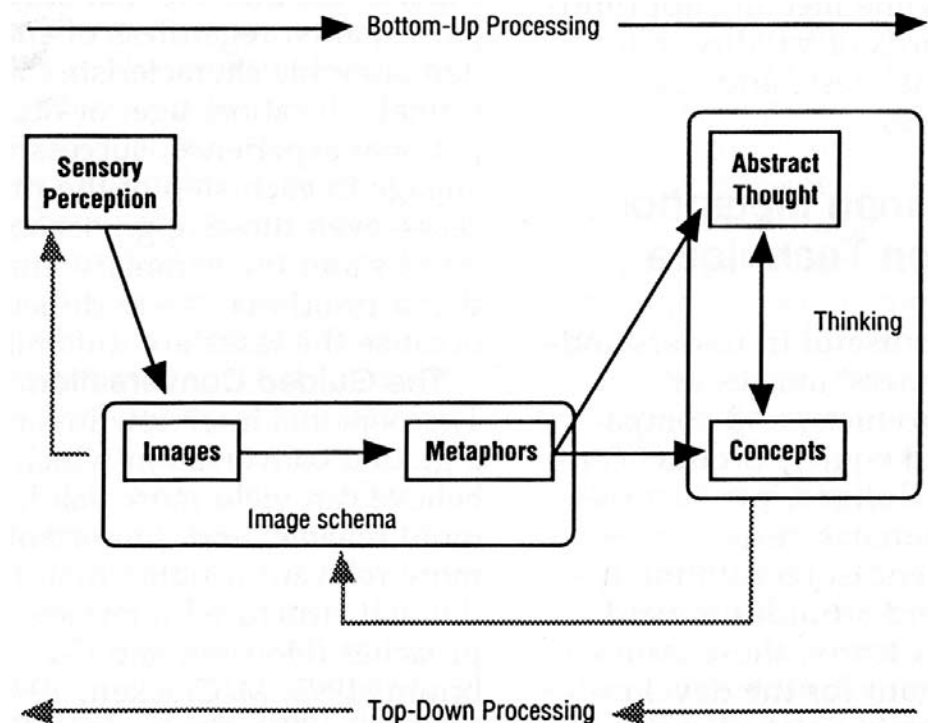
. . . metaphors are especially important for eliciting a mental model shared by a market segment or group.

metaphors are acquired through a socialization process so that, at some level, their meaning is shared within a culture or community. Thus, metaphors are especially important for eliciting a mental model shared by a market segment or group.

Based upon these premises and framework, we suggest that there is need for a research tool that:

Taps nonverbal channels of communication in a manner that produces rich, deep, and representative insights about consumers.

Makes use of metaphors which are fundamental to learning and communication.

Generates core constructs and the reasonings that connect them to form the mental models driving consumer thought and action.

Provides information in a way which is highly useful to copy developers, creative staffs, product-design teams, strategic planning groups, and other ultimate users of market research.

All of this, of course, has to be done while meeting appropriate standards of validity, reliability, timeliness, and cost effectiveness.

The Zaltman Metaphor Elicitation Technique

ZMET is useful in understanding consumers, images of brands, products, and companies, brand equity, product concepts and designs, product usage and purchase experiences, life experiences, consumption context, and attitudes toward business. Clearly, these issues are important for the development of strategic communications agendas and for the development and implementation of advertising copy and executional elements. In the following sections we describe ZMET, use an interview from a study on intimate apparel to illustrate various ZMET steps, and then use data generated in the study to demonstrate how the findings might be used to develop ad copy and executional elements. Further, we provide a discussion of reliability and validity issues as they relate to ZMET.

Implementing the Technique. Typically 20 individuals are recruited to participate in a project. After qualifying for participation (based on screeners), participants are given a set of instructions and guidelines about the research topic, e.g., a brand name, a corporate identity, a service concept, product use, or product design. They are instructed to take photographs and/or collect pictures (from magazines, books, newspapers, or other sources) that indicate what the topic means to them. A personal interview is scheduled approximately seven to ten days hence. Participants typically engage in five to six hours of preparation for the interview. Our experiences indicate that study participants, regardless of such demographic characteristics as formal education, age, or occupational experience, successfully engage in each step of the process even those (e.g., sensory images and the summary image) that a priori may seem difficult because the tasks are unfamiliar.

The Guided Conversation.

The personal interview involves a guided conversation which we believe can yield more valid, more reliable, and, importantly, more relevant insights than traditional structured interview approaches (Holstein and Gubrium, 1995; McCracken, 1988; Mishler, 1986). Because ZMET has consumers collect their own pictures, the consumers (not the researchers) are in control of the stimuli used in the guided conversation.

The guided conversation is a personal, one-on-one interview that takes approximately two hours, and it is audiotaped. The two-hour time frame and the interview format afford an opportunity for a properly trained interviewer to learn not only about people's initial thoughts (much as might be obtained by a structured questionnaire or focus group) but also about the deeper meaning of a topic. The guided conversation includes a variety of steps, only a subset of which are used in any particular project. Inclusion of steps in any particular project and the manner in which they are implemented are based on the nature of the problem and the intended use of the data. We use an interview with Elizabeth, a participant in a study about intimate apparel, to illustrate 10 ZMET steps. A variety of probes based on art therapy theory and practice, although not used in this example, also have proven to be extremely useful in many projects.

Step 1, *Storytelling*, provides participants with an opportunity to tell their stories. Because human memory and communication is story-based (Schank, 1990) and participants have been thinking about the topic for a week to 10 days, it is not surprising that participants come to the interview with a particular agenda or story they want to tell. Elizabeth

brought in 13 images and described how each of her pictures related to this type of intimate apparel. For example, one of Elizabeth's photographs was of a microwave oven with a telephone (its cord very twisted) on it. Elizabeth said that this picture served to illustrate the twisted, hot, uncomfortable feeling of wearing this particular article of intimate apparel.

In Step 2, *Missed Issues and Images,* the interviewer asks the participant to describe any issues for which she or he was unable to find a picture and to describe a picture that would represent the issue. This is an important step because it allows the participant to address issues that might have come to mind either after gathering the pictures or during the interview process. Elizabeth indicated that she would have liked to take a photograph of a "nice painting with a scratch on it, or a glass with a crack" to represent a tear in the article of intimate apparel.

In Step 3, *Sorting Task*, the participant is asked to sort his or her pictures into meaningful piles and to provide a label or description for each pile. There are no restrictions on the number of piles or the number of pictures in each pile. The sorting task is useful because it helps to establish the major themes or constructs relevant to the participant. Elizabeth sorted her images into five groups reflecting both positive and negative feelings: (1) elegant, (2) conforming, (3) constricted, (4) tortured, and (5) twisted up.

Step 4, *Construct Elicitation*, employs a modified version of the Kelly Repertory Grid technique and the laddering technique (Kelly, 1963; Shaw and McKnight, 1980; Gutman, 1982; Lewis and Klein, 1985; Reynolds and Whitlark, 1995; Reynolds and Gutman,

1988; Valette-Florence and Rapacchi, 1991). The Kelly Repertory Grid Technique is an effective method of eliciting constructs which underlie thinking and action. The interviewer uses the Kelly Grid technique (identifying how any two of three stimuli are similar but different from the third stimulus) to elicit constructs from participants. In other words, the Kelly Grid technique surfaces the variables that participants use to make sense about, or literally "sort out," the meaning of a product category, a specific brand, or other consumption-related situation.

The laddering procedure is especially useful for eliciting causal patterns among the constructs identified by the Kelly Grid technique. Laddering, a set of thought probes, tends to surface variables in a means-end chain consisting of attributes, consequences, and values, thereby providing a set of causally connected constructs. Using both techniques together is an effective mechanism for getting consumers to articulate the constructs and the relationships among constructs (Reynolds and Gutman, 1988). Moreover, the techniques complement one another: the Kelly Grid increases the likelihood of surfacing relevant constructs, and the laddering technique increases the likelihood that associated ideas and relevant connections among constructs are being understood.

To illustrate we provide one of Elizabeth's triads. During the Kelly Grid, Elizabeth randomly selected three pictures, shown in Exhibit 1. She indicated that the two pictures on the left (trees with bands around the trunks and fencing tightly wrapped in cellophane) represented physical discomfort and the other picture (flowers in a nice vase) represented beauty. The laddering process then was

To understand what something is, it is also necessary to know what it is not.

used to obtain an understanding of the deeper meanings of physical discomfort and beauty as related to Elizabeth's wearing of this garment. Elizabeth reported that some components of the garment made her physically uncomfortable which in turn made her feel imprisoned. In addition, she noted that the vase represented tallness and thinness and that the flowers represented beauty; both of these factors related to the elegance that she could feel when wearing this garment.

In Step 5, *Most Representative Image*, Elizabeth indicated that the picture that most represented her feelings was her picture of two African masks that had necklaces around their elongated necks, shown in Exhibit 2. She reported that the masks expressed both the positive (elegance) and negative (constrained) feelings that she had about wearing this article of clothing.

In Step 6, *Opposite Image*, the interviewer asks the participant about pictures that might describe the opposite of the task they were given. To understand what something is, it is also necessary to know what it is not. Indeed, there is convincing argument that any concept or construct contains the footprint or trace of its opposite meaning (Brunette and Wills, 1989). When the interviewer asked Elizabeth what images conveyed the opposite of her image of intimate apparel, she responded with a flock of birds soaring around the

Exhibit 1
"Intimate Aparel" Triad for Elizabeth
(The Kelly Repertory Grid Technique
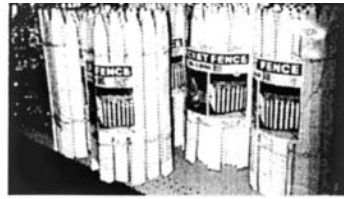
skies (representing freedom to do as they pleased).

In Step 7, *Sensory Images*, the participant is asked to use other senses to convey what does and does not represent the concept being explored. People think by means of all their senses, and sensory thoughts are images (MacDougall, 1992; Howes, 1991; Bone and Jantrania, 1992; Danesi, 1990; Classen, 1993); thus, we believe that such images are important to capture and analyze. Each individual tells what is and is not the taste, touch, smell, color, sound and emotional feeling related to the concept being explored. Elizabeth's nonvisual sensory images of this article of

intimate apparel included: the taste of medicine, but not dessert; the feel of sandpaper and silk, but not of cream; the sound of static, but not that of a waterfall; the smell of sulfur, but not of roses; the color brown, but not red; the feeling of anxiety, but not of peacefulness. The meaning of each image is explored with each participant to surface relevant constructs.

In Step 8, *The Mental Map,* the interviewer reviews all of the constructs discussed and asks the participant if the constructs are accurate representations of what was meant and if any important ideas are missing. Then the participant creates a map to illustrate the connections among important constructs as they relate to the topic. An abridged (for presentation purposes) version of Elizabeth's mental map is illustrated in Figure 2.

In Step 9, *The Summary Image*, the participant creates a summary image or montage using his or her own images (sometimes augmented by images from an image bank) to express his or her important issues. Digital imaging techniques facilitate the creation of the digital image.

To begin the process, a graphics technician scans into the computer the pictures that the participant

wants to include in the summary image and then on the participant's direction creates the digital image. The digital image management process contains many special effects options and enables the participant to rearrange or alter the subject, foreground, background, or specific elements including color, object sizes, shapes, positions, and even textures appearing within pictures to be more expressive of the concept. The use of digital imaging is intended to stimulate or at least help to express thinking rather than to develop an aesthetically pleasing image or an image that is creative for its own sake.

Elizabeth's digital image, Exhibit 3, consisted of components of five of her pictures and visually depicted her story about intimate apparel, which she described as follows:

The background is a flowing chocolate colored dress that illustrates freer movement, smooth, silky, and beautiful. The gash through the dress represents a run or a tear and the frustration, wasted money, embarrassment, and apprehension associated with that. The cookie cutter in the center illustrates conformity wearing what everyone has to wear, no freedom of choice, women having to be a certain way. The mask in the cookie cutter's head illustrates two diverse feelings when wearing the article of intimate apparel-first, the elongated neck indicates a sense of feeling taller, thinner, and elegant; in the second, the necklaces represent feelings of physical discomfort and being constricted. The tangled garden hose in the cookie cutter's mid-section rep-

Exhibit 2
Elizabeth's Most Representative Image (African Masks)

Figure 2
Mental Map of Intimate Care
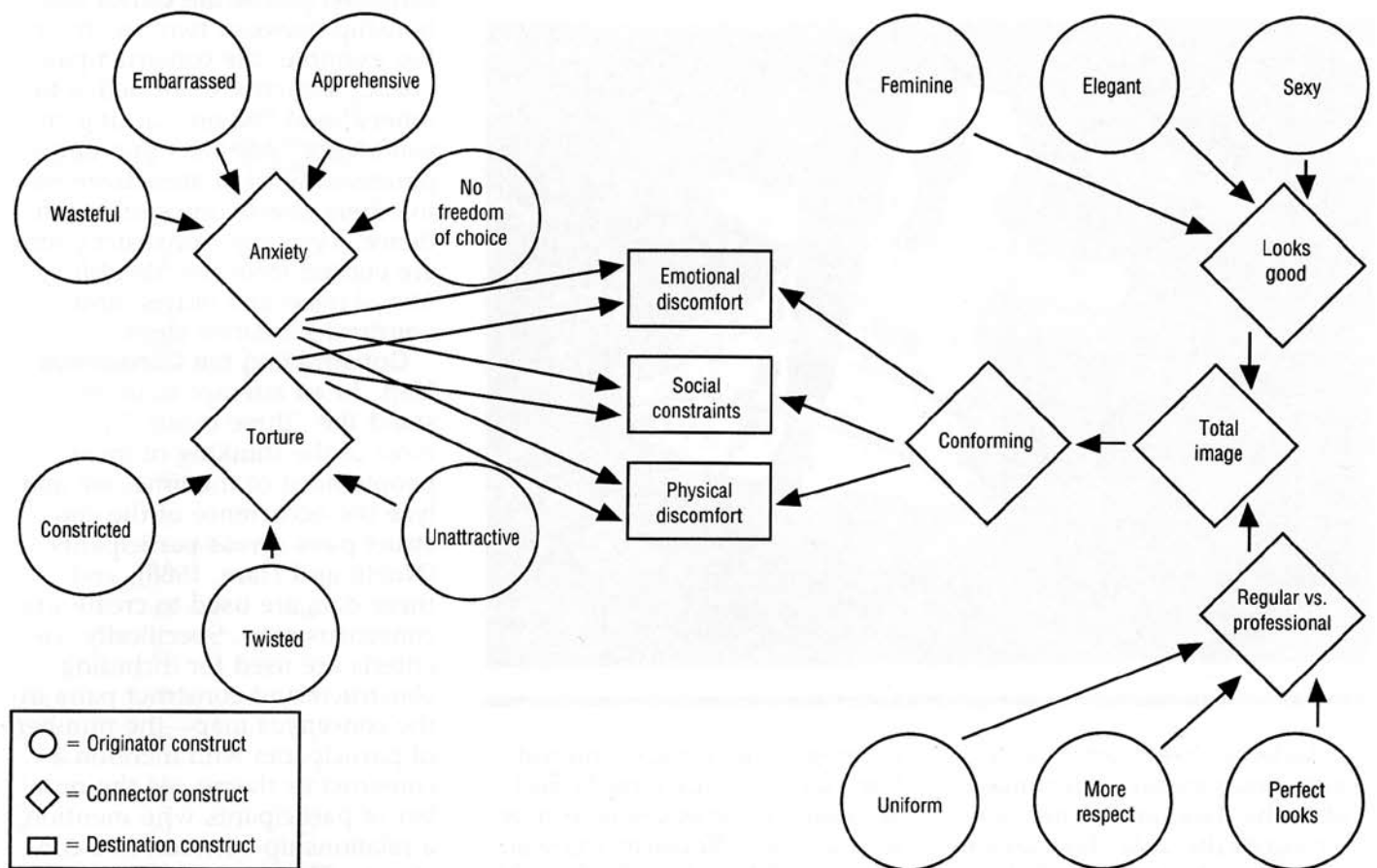
resents the anxieties associated with wearing the item. Finally, St. Catherine's wheel around the cookie cutter represents the torture and physical discomfort of wearing the item.

People think differently when they think "in motion" than when they think in still images or pictures. In Step 10, *The Vignette*, the participant is asked to create a vignette or short video that helps to communicate important issues related to the topic under consideration. Elizabeth's vignette about wearing this article of intimate apparel expressed her more positive feelings:

It's a rainy spring day, and I'm feeling a little sad. Some new age music is playing on the stereo. The telephone rings, and a friend who I hadn't seen in months is on the line. My mood changes at the sound of his voice. He asks me out to dinner and says he'll come to get me in an hour. I look in my drawers for my most elegant intimate apparel and then into my closet for a sexy dress. I put them on and feel beautiful. As I put on my perfume, the doorbell rings and he arrives with champagne and roses.

Identification of Key Themes. Once all of the interviews are completed, the research team reviews each interview transcript to identify key themes or constructs. The identification of themes or constructs (i.e., summary categories or overarching ideas capable of a range of different values and dimensions) is an onerous task. However, several streams of research, particularly categorization theory (Rosch, 1978) and theories of emotion (Izard, 1977; Plutchik, 1980), have provided guidance in

Exhibit 3
Elizabeth's Digital Image of Intimate Apparel

understanding the important issues related to categorizing tangibles and feelings, respectively. Based on this theoretical grounding, social scientists involved with qualitative data have established guidelines for developing classification schemes and coding of data (Glasser and Strauss, 1967; Lincoln and Guba, 1985; Miles and Huberman, 1984; Strauss and Corbin, 1990). Recently, Spiggle (1994) elaborated on issues related to analyzing qualitative data, specifically focusing on categorization, abstraction of categories, comparison of instances within the data, and dimensionalization of the data. This area of research has been particularly valuable in the analysis of ZMET data.

All ZMET constructs are bipolar, for example, satisfaction encompasses both "very satisfied" as well as "very dissatisfied" and the range of responses between those two "endpoints." The list of key themes or constructs derived from the examination of interview transcripts serves as the starting point for coding participants, responses. The construct list may be supplemented during the course of coding should previously unidentified constructs be found (Spiggle, 1994).

The number of constructs generated varies from project to project, and from participant to participant, depending on the level of the participants, involvement with the topic of interest. For example, regarding Project 20, usage experiences with new technologies, 50 constructs were mentioned by a least 5 of the 21 participants (see Table 1). The number of constructs mentioned by any one participant ranged from 21 to 43; the average was 33. Also with regard to Project 20, the 26 constructs included in the consensus map were mentioned by at least 11 of the 21 participants. In contrast,

Project 15, a brand equity study for a snack food, was less involving. Twenty-seven constructs were mentioned by at least two of the ten participants, and the number of constructs mentioned by any one participant ranged from twelve to twenty-four; the average was seventeen. Also, with regard to Project 15, the 18 constructs included in the map were mentioned by at least five of the ten participants.

Coding the Data. Once the list of key themes has been developed, data are coded in terms of paired-construct relationships. A construct pair is the causal relationship between two constructs. For example, the construct pair "being attractive/unattractive to others" and "having/lacking selfconfidence" suggests that one's perceived level of attractiveness to others affects one's self-confidence. Typically, construct pairs are elicited from the Storytelling, Missed Issues and Images, and Construct Elicitation steps.

Constructing the Consensus Map. In an attempt to understand the "three mosts," i.e., most of the thinking of most people most of the time, we analyze the occurrence of the construct pairs across participants (Noblit and Hare, 1988), and these data are used to create the consensus map. Specifically, two criteria are used for including constructs and construct pairs in the consensus map--the number of participants who mention a construct or theme and the number of participants who mention a relationship between two constructs. These criteria consistently are used to derive the consensus map in a ZMET project.

The actual number of mentions necessary for either a construct or a construct pair to be included on a consensus map varies per project, depending upon the number of participants involved and the na-

Table 1
Number of Participants in 20 Most Recent Projects Required to Generate 80 Percent or More of the Consensus Map[a]

Project[b]	Sample size	Total number of constructs generated	Number of construct retained in consensus map[c]	Percentage of retained construct captured after participant number		
				At least 80%[d]	At least 90%[e]	100%[f]
1	23	61	32	8	8	12
2	20	53	27	4	10	15
3	25	104	56	4	5	8
4	28	74	53	3	4	7
5	25	75	59	2	4	10
6	25	73	54	3	3	7
7	18	42	24	1	2	4
8	17	71	38	3	3	4
9	17	61	28	2	2	3
10	25	48	32	2	3	5
11	24	37	28	3	4	4
12	27	42	33	3	4	5
13	20	28	24	3	3	5
14	15	32	28	2	4	5
15	20	33	23	2	3	4
16	10	27	18	2	3	4
17	14	35	21	1	2	2
18	14	34	22	1	2	3
19	23	46	18	1	2	2
20	21	50	26	2	2	3

[a] Note: This table is generated by selecting participant data sets at random after all interviewing is completed. Thus, participant number 8 in Application 1 could be any one of the total 23 participants rather than the eighth person interviewed. Different random drawings would alter the actual numbers in the last three rows but not the general pattern of a sharp decline in new constructs after relatively few participants.
[b] Our projects included a variety of topics: Corporate/Brand Image (1, 15); Product Design (4, 5, 6); Product Usage Experience (3, 13, 20); Product Purchase Experience (10); New Product Concept (7, 8, 9, 11); Existing Product Concept (2); Lifestyle (12); Brand Equity (16, 17, 18); Consumption Context (19); Attitude toward Business (14).
[c] Based upon a content analysis of the total constructs generated, very similar constructs were edited and combined as appropriate. The numbers in this row indicate the number of constructs retained in the consensus map for each application after the content analysis and after eliminating unique or idiosyncratic responses.
[d] At least 80% of the retained constructs in the application were captured by the nth participant. For example, in Application 1, at least 80% of the retained constructs were captured after the 8th participant. (In actuality, the addition of this person's data resulted in the capture of 91% of the constructs.)
[e] At least 90% of the retained constructs in the application were captured by the nth participant. For example, in Application 1, at least 90% of the retained constructs were captured after the 8th participant.
[f] 100% of the retained constructs in the application were captured after the nth participant. For example, in Application 1, all of the retained constructs were captured after the 12th participant.

ture of the project (i.e., the extent to which consumers have narrow or broad-based understandings of and feelings about the research topic). Table 1 (column 4) indicates that the number of constructs retained in the consensus map for the 20 projects ranged from 18 (Projects 16 and 19) to 59 (Project 5). Typically, for a construct to be included on the consensus map, it must have been mentioned by at least one-third third of the participants and a construct pair must have been mentioned by at least one-quarter of the participants. As a consequence, the consensus map, on average, captures 80 percent of the constructs mentioned by each participant.

The consensus map generated from these data is a diagram showing the linkages among the elicited constructs. Direct and indirect connections between constructs (or themes) represent a reasoning chain or thinking process showing how one idea leads to another. These associations are important because addressing one construct will have a ripple or multiplier effect on those with which it is causally connected.

A somewhat abridged example of a consensus map involving the experience of wearing an item of intimate apparel is shown in Exhibit 5. Each construct is bipolar, that is, "physical comfort" signifies both physical comfort and discomfort. The consensus map shown is based on 25 participants, and illustrates the construct pair relationships mentioned by at least 5 participants. The arrows on the consensus map represent links between constructs. Some constructs are originating points (shown as circles on the map) in a reasoning process and lead to other constructs, and other constructs are destination or ending points (shown as rectangles on

Table 1
Number of Participants in 20 Most Recent Projects Required to Generate 80 Percent or More of the Consensus Map[a]
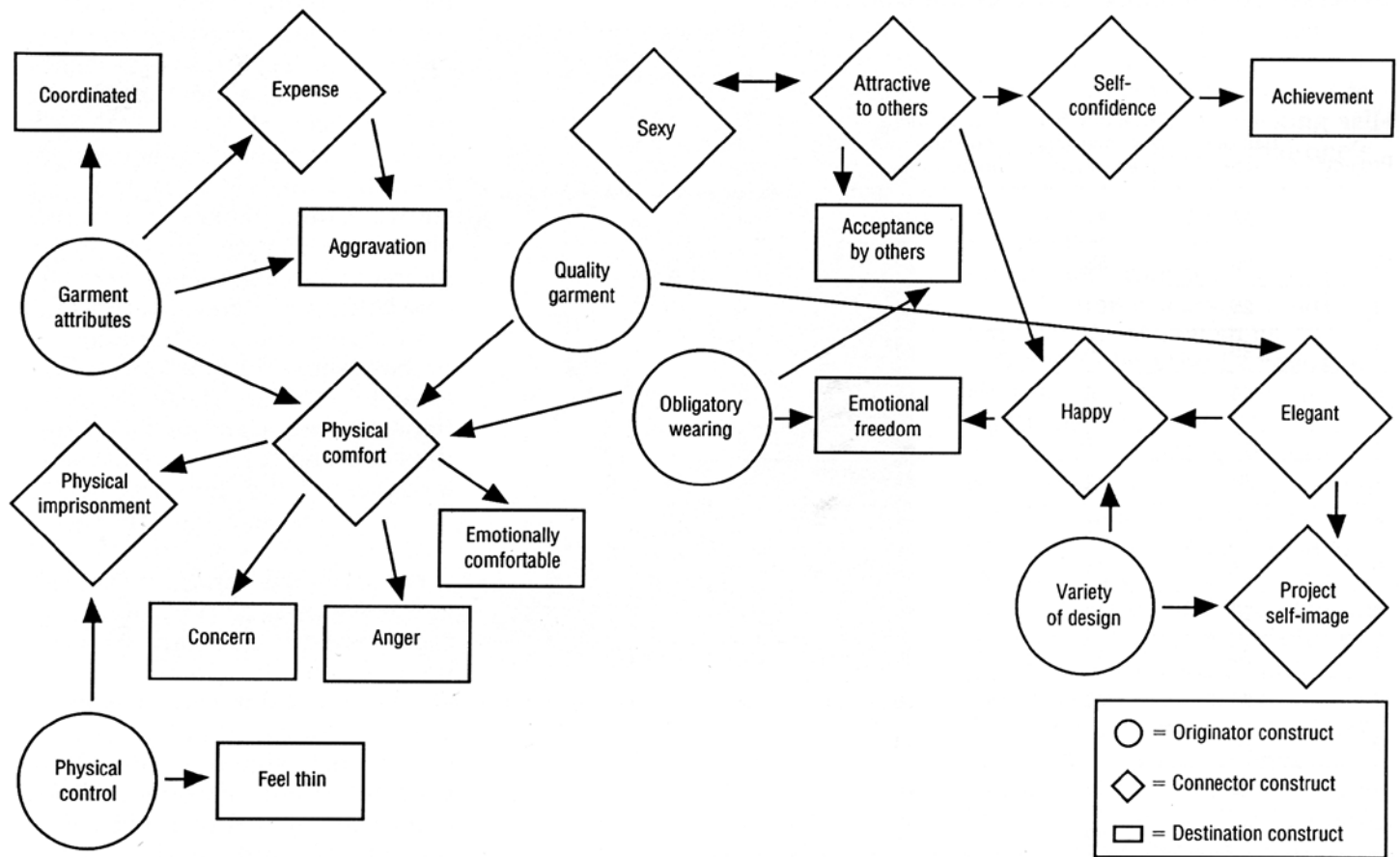
the map) in a reasoning process. Connector constructs (shown as diamond shapes on the map) serve as transmitters or linkages between originator, destination, and other connector constructs. Because originator and connector constructs trigger other constructs, care should be taken to address these issues in communication strategies.

The intimate apparel consensus map (Figure 3) illustrates the relationships among relevant constructs that have particular relevance for the development of ad copy for "variety of product designs" and "garment quality." Comments made by participants in the study help to provide an understanding of how these two constructs affect projection of self image, elegance, happiness, sexiness, having a coordinated look, being perceived as attractive to others, and self-confidence:

". . . special details . . . are fun--they add to the total outfit and help me to express myself. "
". . . when you're all dressed up you feel like a queen--elegant, royal, expensive in [garment] with a nice sheen, soft, sheer, and maybe a design."
". . . when you're dressed up, [garment] makes you feel confident."
". . . fancy lingerie is sexy, pretty, nice, racy--romantic interlude--want to feel pretty."

Thus, although the consensus map clearly indicates negatives associated with this garment, in particular physical discomfort and its consequences, there are numerous themes that serve as the starting point for developing meaningful advertising copy and executional elements.

Observations about the Consensus Maps. After the data are processed to develop the consensus map, participant files are selected at random and the number of constructs mentioned by each successive file but not mentioned by the previous file(s) is noted. That is, we answer the

question, "How many new constructs are added by each randomly selected file?" Table 1 contains information about consensus maps from 20 recent applications (some applications did not call for consensus maps). The data in Table 1 (columns 5, 6, and 7, respectively) indicate the number of randomly selected participant files needed to account for 80 percent, 90 percent, and 100 percent of the constructs identified on the consensus maps. For example, as related to Project 3, at least 80 percent of the constructs in that project's consensus map were captured after the fourth participant (randomly selected); at least 90 percent of the constructs were captured after the fifth participant and 100 percent were captured by the eighth participant. On average, it took six participant files to account for 100 percent of the constructs identified on the consensus maps. In essence, every interview selected at random after the sixth (on average) serves as validation for the elicited constructs. Thus, there is a high level of consensus among participants in each of the projects.

Illustrating Important Constructs and Construct Relationships. The important constructs and construct relationships are illustrated in a variety of ways. For example, visual and other sensory dictionaries, as well as digital images and vignettes, help to communicate the metaphors participants associate with the key constructs. The visual dictionary includes pictorial images that represent constructs and reasoning chains that are important to participants. Thus, for example, the picture of the trees with the bands around the trunks and the picture of the fencing tightly wrapped in cellophane (Exhibit 1) might illustrate "physical discomfort" and its

consequences--"anger," "concern," "physical imprisonment," and "emotional discomfort"--in the visual dictionary for the study on intimate apparel. Additionally, the sensory dictionary includes non-visual sensory images (e.g., taste, touch, and smell) that participants have used to describe a key construct or theme and sensory images that participants have indicated do not describe the key construct or theme. Finally, the digital images and vignettes provide the participants' own summary representations of important themes and construct relationships.

These data are presented in a number of forms depending on client interests and needs. For example, the visual, sensory, and digital images along with vignettes are presented in an interactive CD. This data configuration enables the user to "click" on a construct presented on a screen and see a sample of visual and other sensory metaphors that represent how consumers understand and/or experience that construct. The images are coupled with the participant's vocal description of the relevance of the pictures, tactile sensations, and so forth. Additionally, this data form allows the user to click on a line connecting two constructs and see images representing especially important reasoning or thinking processes linking them. Digital images created by participants along with their audio description of their summary pictures also can be accessed. Illustrating these data on video, in addition to or in lieu of the interactive CD, is an option.

Evaluating ZMET

The task of evaluating a new technique is as important as it is demanding. The appropriate evaluative criteria for any technique vary with the technique's inher-

ent characteristics, the particular problem being addressed, and the purpose of the research. For instance, different criteria may be appropriate and/or be given more or less weight when a tool is being used for exploratory rather than confirmatory purposes. Even the basic concepts of validity and reliability are defined or operationalized differently, depending on the aim of the research, assumptions about the nature of facts, and the researchers' goals (Lauder, 1984). Indeed, many have cautioned that we use appropriate criteria (not criteria established for, for example, survey research) to assess qualitative research (Holstein and Gubrium, 1995; Wallendorf and Belk, 1989).

ZMET is a hybrid methodology grounded in a broad body of literature which lends support to the technique's validity and reliability. For example, the use of photography as a research tool (Worth and Adair, 1972) has a 50-year history that crosses many disciplines, and the validity and reliability of photography as a general research tool has been discussed extensively by Denzin (1989). Additionally, the in-depth personal conversation has significant merit in its own right (Mishler, 1986; McCracken, 1988), and other research conducted by Griffin and Hauser (1992), Silver and Thompson (1991), Robinson (1991), and Fern (1982) suggests that personal interviews are more efficacious than focus groups. Further, the validity and reliability of the Kelly Repertory Grid and laddering technique as means for eliciting constructs are also well-established (Kelly, 1963; Gutman, 1982; Reynolds and Gutman, 1988; Shaw and McKnight, 1980).

It is also important to note that the ZMET research team plays an important role in providing valid

and reliable data. In particular, the staff develops a purposive sampling plan and exchanges insights with interviewers both during and after data collection. Throughout the procedure, we employ steps to establish credible qualitative research based on the guidelines set forth by Wallendorf and Belk (1989), Webb et al. (1981), Miles and Huberman (1984), Lincoln and Guba (1985), Kirk and Miller (1986), and Strauss and Corbin (1990). Specifically, we: (1) engage participants in a personal, in-depth conversation that averages two hours in length, (2) triangulate across methods as evident by the multiple steps used in the ZMET interviews, (3) regularly interact with interviewers to discuss the interview structure, constructs elicited, etc., (4) triangulate across researchers, reviewing the interview transcripts and audiotapes of the participants, and (5) have participants verify the constructs elicited, and those not elicited, during the interview.

To date, our research has involved over 1,400 consumers. During the course of our research, clients have shared proprietary data previously collected on their respective topics using standard quantitative and qualitative tools. These clients have indicated that ZMET has provided results consistent with the results other methods produced, but also added value by surfacing unique insights which the clients considered to be important. For projects that focused on issues that had not been previously investigated, companies found the ZMET data useful in a number of ways. A sample of action-producing insights that clearly have ad copy implications (although that may not have been the driving force behind the research) include:

ß A product believed to be an impulse purchase is not and, there-

fore, point-of-purchase advertising and product display strategies needed to be reconsidered.

Product-purchase and product-usage experiences interact and hence overall communication strategy had to be reconsidered.
Consumer perceptions of a company did not match how key managers understood their public image.
An advertising concept contained two important dimensions that had not been uncovered previously.
A more useful way to think about creating advertising copy.
A unique way of advertising a new product concept.
A new understanding of how consumers perceive innovations.
A new positioning for an existing product.

Although ZMET addresses many limitations of other techniques it has limitations of its own. First, proper data analysis requires researcher familiarity with the disciplinary foundations of the technique. This is more than a modest start-up cost for the researchers and being unfamiliar with these literatures can result in misuse of the tool and data. Additionally, interviewers have an important role during data collection, since each step can be introduced in different ways and individual differences among participants may call for somewhat different approaches. Skill is required to make the judgment of when and how to do this. Further, interviewers play an integral role in the analysis of each participant's data. Thus, ZMET interviewers require special training beyond that associated with typical personal interviewing. Also, the graphics imaging technicians must be well versed in digital-imaging technologies as well as the basic

research approach.

Second, the technique is very labor intensive. Post-interview data analyses, the creation of animated versions of selected vignettes, and the development of a final report involving sensory dictionaries is demanding. Relatedly, the process of managing images and creating an interactive CD and associated videotape requires expertise with certain hardware and software.

Third, although ZMET identifies important factors influencing consumers and clarifies both the positive and negative experience of these factors, it does not provide (because of sample size) estimates of the percentage of a larger population who feel negatively and positively. Further, quantitative estimates of the relative strength of association between constructs are not possible.

Finally, the pictures participants bring to the interview and the various sensory images they discuss are representative of the kinds of images they find familiar and are likely to elicit certain concepts. They are not, however, a substitute for creative thinking about visual and other images that could be still more impactful in activating the common mental model (consensus map).

Conclusion

Market researchers can develop tools that provide still more usable and valid knowledge about the marketplace by making use of the premises discussed at the outset of this article. These premises are derived from diverse fields of inquiry in the social and biological sciences
and in the humanities about how people make sense of and communicate about their personal and social worlds. The technique introduced here draws upon these

fields and illustrates how efforts to engage consumers in nonverbal communication and understand the meaning of metaphors can elicit rich stories from which representative mental models can be extracted. These mental models reveal basic reasoning processes and provide deep, useful insights about consumers and their latent and emerging needs. Such insights can provide developers of advertising copy and creative staff guidance for capturing consumer attention and engaging their thought processes.

GERALD ZALTMAN is the Joseph C. Wilson Professor of Business Administration, Harvard University. He has a Ph.D. in sociology from the Johns Hopkins University and an MBA degree from the University of Chicago He has authored or edited 27 books and over 100 journal articles Dr Zaltman has received the American Marketing Association's Richard D Inwin Distinquished Educator Award, the Association for Consumer Research's Fe low Award, and the Knowledge Utilization Society's Scientific Achievement Award. He has been cited in numerous surveys as one of the leading thinkers in marketing and in consumer behavior.

ROBIN HIGIE COULTER is associate professor of marketing in the School of Business Administration at the University of Connecticut. She received her Ph D and M.B.A from the Joseph M. Katz Graduate School of Business, University of Pittsburgh. Her research interests include advertising effects, research methods, and consumer decision-making Professor Coulter has been pubished in such Journals as the Journal of Applied Psychology, the Journal of Advertising, the Journal of Advertising Research, and the Journal of Retailing.

References

Arnheim, Rudolf. Visual Thinking. Berkeley, CA: The University of California Press, 1969.

Ball, Michael S., and Gregory W. H. Smith. Analyzing Visual Data. Newbury Park, CA: Sage Publications, 1992.

Birdwhistell, R. L. Kinesics and Context: Essays on Body Motion Communication. Philadelphia, PA: University of Pennsylvania Press, 1970.

Black, Max. "More About Metaphor." In Metaphor and Thought, 2d ea., Andrew Ortony, ed. New York, NY: Cambridge University Press, 1993.

Bone, Paula F., and Swati Jantrania. "Olfaction as a Cue for Product Quality." Marketing Letters 3, 3 (1992): 289-296.

Brunette, Peter, and David Wills. ScreenlPlay: Derrida and Film Theory. Princeton, NJ: Princeton University Press, 1989.

Burgoon, Judee K.; David B. Buller; and W. Gill Woodall. Nonverbal Communication: The Unspoken Dialogue. New York, NY: Harper and Row, 1989.

Classen, Constance. Worlds of Sense: Exploring the Senses in History and Across Cultures. New York: Routledge, 1993.

Damasio, Antonio R. Descartes' Error: Emotion, Reason, and the Human Brain. New York, NY: G. P. Putnam's Sons, 1994.

Danesi, Marcel. "Thinking Is Seeing: Visual Metaphors and the Nature of Abstract Thought." Semiotica 80, 3/4, (1990): 221-237.

Denzin, Norman K. The Research Act: A Theoretical Introduction to Sociological Methods, 3d ed. Englewood Cliffs, NJ: Prentice Hall, 1989.

de Sousa, Ronald. The Rationality of Emotion. Cambridge, MA: The MIT Press, 1987.

Entin, A. D. "The Use of Photographs and Family Albums in Family Therapy." In Questions and Answers in the Practice of Family Therapy, A. Gurman, ed. New York, NY: Brunner Mazel, 1981.

Fern, Edward F. "The Use of Focus Groups for Idea Generation: The Effects of Group Size, Acquaintanceship, and Moderator on Response Quantity and Quality." Journal of Marketing Research 19, 1 (1982): 1-13.

Fincher, J. Human Intelligence. New York, NY: G. P. Putnam's Sons, 1976.

Gibbs, Raymond W., Jr. The Poetics of Mind: Figurative Thought, Language, and Understanding. New York, NY: Cambridge University Press, 1994.

Glasser, Barney G., and Anselm L. Strauss. The Discovery of Grounded Theory. Chicago, IL: Aldine, 1967.

Glucksberg, Sam. "Language and Thought." In The Psychology of Human Thought, R. J. Sternberg and E. E. Smith, eds. Cambridge, Great Britain, 1988.

Goldman, Alvin I. Epistemology and Cognition. Cambridge, MA: Harvard University Press, 1986.

Griffin, Abbie, and John R. Hauser. The Voice of the Customer. Report Number 92-106, March. Cambridge, MA: Marketing Science Institute, 1992.

Howes, David, ed. The Varieties of Sensory Experience: A Sourcebook in the Anthropology of the Senses. Toronto, Canada: University of Toronto Press, 1991.

Gutman, Jonathan. "A Means-End Chain Model Based on Consumer Categorization Processes." Journal of Marketing 46, 2 (1982): 60-72.

Hall, Edward T. The Silent Language. New York, NY: Doubleday, 1959.

Holstein, James A., and Jaber A. Gubrium. The Active Interview. Thousand Oaks, CA: Sage Publications, 1995.

Humphrey, Nicholas. A History of the Mind. New York, NY: Harper Collins Publishers, 1992.

Izard, C. E. Human Emotions. New York, NY: Plenum Press, 1977.

Johnson, M. The Body in the Mind: The Bodily Basis of Meaning, Imagination and Reason. Chicago, IL: University of Chicago Press, 1987.

Kelly, George A. A Theory of Personality. New York, NY: Norton, 1963.

Kirk, Jerome, and Marc L. Miller. Reliability and Validity in Qualitative Research. Beverly Hills, CA: Sage Publications, 1986.

Knapp, M. Essentials of Nonverbal Communication. New York: NY: Holt, Rinehart and Winston, 1980.

Kosslyn, Stephen; M. C. Segar; J. Pani; and L. A. Hillger. "When Is Imagery Used? A Diary Study." Journal of Mental Imagery 14 (1990): 131-152.

Krauss, D. A., and J. L. Fryrear, eds. Phototherapy in Mental Health. Springfield, IL: Charles C. Thomas, 1983.

Lakoff, George. Women, Fire, and Dangerous Things: What Categories Reveal about the Mind. Chicago, IL: The University of Chicago Press, 1987.

--, and Mark Johnson. Metaphors We Live By. Chicago, IL: The University of Chicago Press, 1980.

Lauden, Larry. "Reconstructing Methodology." Paper presented at the Winter Educator's Conference, American Marketing Association, Fort Lauderdale, FL, 1984.

Lewis, Robert C., and David M. Klein. "Personal Constructs: Their Use in the Marketing of Intangible Services." Psychology and Marketing 2, 3 (1985): 201-215.

Lincoln, Yvonna S., and Egon G. Guba. Naturalistic Inquiry. Beverly Hills, CA: Sage Publications, 1985.

MacDougall, David. "Films of Memory." Visual Anthropology Review 8, 1 (1992): 29-37.

Marks, Lawrence E. The Unity of the Senses: Interrelations among the Modalities. New York, NY: Academic Press, 1978.

McAdams, Stephen, and Emmanuel Bigand. Thinking in Sound: The Cognitive Psychology of Human Audition. Oxford: Clarendon Press, 1993.

McCracken, Grant. The Long Interview. Newbury Park, CA: Sage Publications, 1988.

Mehrabian, Albert. Silent Messages. Belmont, CA: Wadsworth, 1971.

Miles, Matthew B., and A. Michael Huberman. Qualitative Data Analysis: A New Sourcebook of Methods. Beverly Hills, CA: Sage Publications, 1984.

Mishler, Elliot G. Research Interviewing: Context and Narrative. Cambridge, MA: Harvard University Press, 1986.

Montagu, Ashley. Touching: The Human Significance of the Skin, 3d ed. New York, NY: Harper and Row Publishers, Inc., 1986.

Noblit, George W., and R. Dwight Hare. Meta-Ethnography: Synthesizing Qualitative Studies. Sage University Papers Series on Qualitative Research Methods, Vol. 11. Beverly Hills, CA: Sage Publications, 1988.

Ortony, Andrew. Metaphor and Thought, 2d ed. New York, NY: Cambridge University Press, 1993.

Pinker, Steven. The Language Instinct: How the Mind Creates Language. Cambridge, MA: MIT Press, 1994.

Plutchik, R. Emotion: A Psychoevolutionary Synthesis. New York, NY: Harper & Row Publishers, Inc., 1980.

Poyatos, Fernando. Paralanguage: A Linguistic and Interdisciplinary Approach to Interactive Speech and Sound. Philadelphia, PA: John Benjamins Publishing Co., 1993.

Reynolds, Thomas J., and Jonathan Gutman. "Laddering Theory,

Method, Analysis, and Interpretation." Journal of Advertising Research 28, 1 (1988): 11-31.

Robinson, Judith L. "Individual Versus Group Interviews: Is There a 'Group Difference' in Focus Group Research?" Unpublished doctoral dissertation. Miami University: Oxford, Ohio, 1991.

Rosch, Eleanor. "Principle of Categorization." In Cognition and Categorization, E. Rosch and B. B. Lloyd, eds. Hillsdale, NJ: Erlbaum, 1978.

Schank, Roger C. Tell Me A Story: A New Look at Real and Artificial Memory. New York, NY: Charles Scribner's Sons, 1990.

Seiter, Ellen. "Semiotics and Television." In Channels of Discourse: Television and Contemporary Criticism, Robert C. Allen, ed. Chapel Hill, NC: The University of North Carolina Press, 1988.

Shaw, Mildred L. G., and Cliff McKnight. Think Again: Personal Decision-Making and Problem-Solving. Englewood Cliffs, NJ: Prentice Hall, 1980.

Silver, Jonathan Alan, and John Charles Thompson, Jr. "Understanding Customer Needs: A Systematic Approach to the 'Voice of the Customer.'" Master's thesis, Sloan School of Management,

M.I.T.: Cambridge, MA, 1991.

Spiggle, Susan. "Analysis of Interpretation of Qualitative Data in Consumer Research." Journal of Consumer Research 21, 4 (1994): 419-503.

Stoller, Paul. The Taste of Ethnographic Things: The Senses in Anthropology. Philadelphia, PA: The University of Pennsylvania Press, 1989.

Strauss, Anselm L., and Juliet Corbin. Basics of Qualitative Research: Grounded Theory Procedures and Techniques. Beverly Hills, CA: Sage Publications, 1990.

Synnott, Anthony. "Puzzling Over the Senses: From Plato to Marx." In The Varieties of Sensory Experience: A Sourcebook in the Anthropology of the Senses, David Howes, ed. Toronto, Canada: University of Toronto Press, 1991.

Valette-Florence, Pierre, and Bernard Rapacchi. "Improvements in Means-End Chain Analysis Using Graph Theory and Correspondence Analysis." lournal of Advertising Research 31, 1 (1991): 30-45.

Varela, Francisco J.; Evan Thompson; and Eleanor Rosch. The Embodied Mind: Cognitive Science and Human Experience. Cambridge, MA: The MIT Press, 1991.

Wallendorf, Melanie, and Russell W. Belk. "Assessing Trustworthiness in Naturalistic Consumer Research." In Interpretive Consumer Research, Elizabeth C. Hirschman, ed. Provo, UT: Association for Consumer Research, 1989.

Webb, Eugene J.; Donald T. Campbell; Richard D. Schwartz; Lee Sechrest; and Janet Belew Grove. Nonreactive Measures in the Social Sciences, 2d ed. Boston, MA: Houghton Mifflin, 1981.

Weiser, Judy. Phototherapy Techniques: Exploring the Secrets of Personal Snapshots and Family Albums. San Francisco, CA: Jossey-Bass, 1993.

_____. "See What I Mean? Photography as Nonverbal Communication in Cross-Cultural Psychology." In Cross-Cultural Perspectives in Nonverbal Communication, Fernando Poyatos, ed. Hogrefe Publishers, 1988.

Worth, Sol, and John Adair. Through Navajo Eyes: An Exploration in Film Communication and Anthropology. Bloomington, IN: Indiana University Press, 1972.

Ziller, Robert C. Photographing the Self: Methods for Observing Personal Orientation. Newbury Park, CA: Sage Publications, 1990.