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Brand Concept Maps: A Methodology for Identifying Brand Association Networks

Deborah Roedder John, Barbara Loken, Kyeong-Heui Kim, and
Alokparna Basu Monga

Brand maps offer a picture of how consumers think about a brand. This study describes an approach for developing “consensus” brand maps that can help managers understand a brand’s core identity and associations across market segments.

Report Summary

Understanding brand equity involves identifying the network of strong, favorable, and unique brand associations in the minds of consumers. Graphical representations of these networks—called brand maps—are particularly helpful in understanding linkages and relationships among different brand associations and envisioning ways a brand’s equity can be leveraged in the marketplace. However, despite their importance for understanding how consumers view brands, consumer brand mapping techniques are still in their infancy, and most techniques produce brand maps through labor-intensive processes that require specialized expertise beyond the capability of most marketing departments and marketing research firms.

In this paper, authors John, Loken, Kim, and Monga introduce a new methodology, Brand Concept Maps (BCM), that is easier to administer, incorporates more straightforward aggregation procedures, provides greater flexibility, and produces brand maps that are reliable and valid.

Presented with a preselected array of brand associations, research participants can complete

the BCM brand-map elicitation process in 15 to 20 minutes, in contrast to the several hours required by other methods. This ease of administration makes BCM suitable for different data-collection venues, such as mall intercepts and focus groups, and enables the collection of much larger and broader samples. Aggregation of individual maps to obtain a consensus brand map is also less time consuming and less subjective. These advantages allow researchers to analyze brand maps in different ways, such as developing consensus brand maps for different market segments.

The consensus brand maps generated through BCM allow managers to understand at a glance which brand associations define a brand’s core identity and how certain brand associations influence these core associations. By showing the interconnections among brand associations, BCM provides managers with a means to envision why consumers have certain beliefs about a brand and which beliefs may need to be changed to affect core brand associations in desired ways. ■

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Introduction

Understanding brand equity involves identifying the network of strong, favorable, and unique brand associations in consumer memory (Keller 1993). Consumers might associate a brand with a particular attribute or feature, usage situation, product spokesperson, or logo. These associations are typically viewed as being organized in a network, in a manner consistent with associative network models of memory (cf. Anderson 1983). This association network constitutes a brand's identity, identifies the brand's uniqueness and value to consumers, and suggests ways in which the brand's equity can be leveraged in the marketplace (Aaker 1996).

Ideally, firms should be able to measure this network of brand associations to produce a complete brand map, such as the one pictured for McDonald's in Figure 1. This map not only identifies important brand associations but also conveys how these associations are connected to the brand and to each other. First, the map pinpoints a number of associations that are directly connected to the McDonald's brand, such as "service" and "value," and that are therefore more closely tied to the brand's meaning. Second, the map shows how other associations are connected to these close brand associations. For example, "consistent," "hassle-free," "convenient," "fast," and "clean" are all connected to the "service" association. Third, the map pictures additional linkages between close associations and between more distant associations. One sees that several core associations—"meals," "value," and "service"—are connected to one another but are not connected to other core associations such as "social involvement."

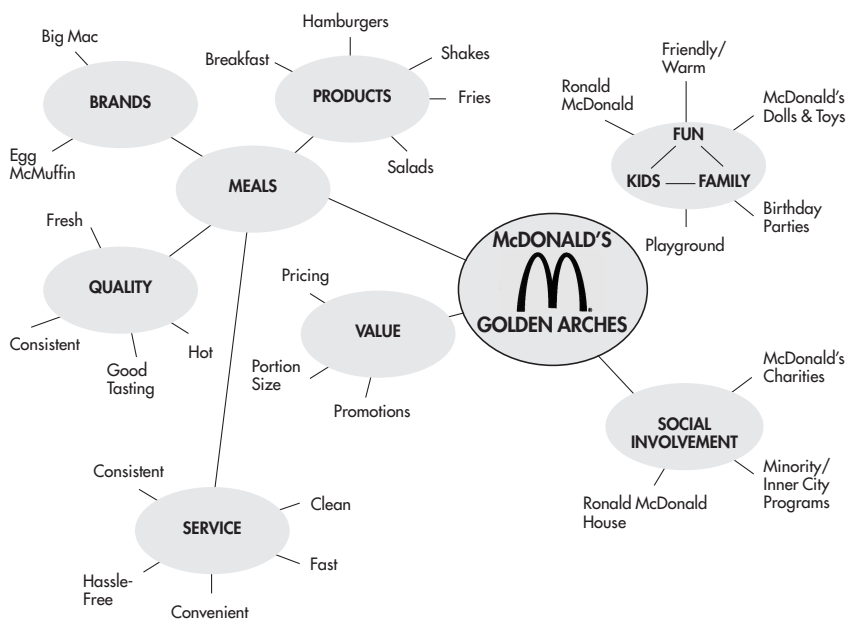
However, methodologies for producing these types of brand maps have been slow to emerge. Of course, many methods are available for eliciting brand associations from consumers, ranging from qualitative techniques such as free-association tasks and collages to quantitative methods such as attribute rating scales and brand personality inventories. Techniques such

as multidimensional scaling are also helpful in understanding how brands are viewed and what dimensions underlie these perceptions. However, these techniques do not identify which associations are directly linked to the brand, which are indirectly linked to the brand by virtue of their linkage to other associations, and which associations are grouped together.

Promising in this regard are two categories of techniques that derive brand maps in different ways. The first, which elicits brand maps directly from consumers, we refer to as *consumer mapping*. Brand associations are elicited from consumers, who are then asked to construct networks of these associations that show links between associations and the brand as well as links among associations. Illustrative of this approach is Zaltman's Metaphor Elicitation Technique (ZMET), which uncovers the constructs consumers associate with a brand through collages and in-depth interviews and then develops the network of brand constructs for individual consumers through further qualitative analysis (Zaltman and Coulter 1995). A second category of techniques, which we refer to as *analytical mapping*, produces brand maps using analytical methods. Brand associations and perceptions are elicited from consumers, but analytical methods are employed to uncover the network of brand associations. Illustrative of this approach is network analysis, which takes input regarding consumer perceptions about brands and derives the structure of brand associations through network algorithms (see Henderson, Iacobucci, and Calder 1998).

Despite these developments, several barriers remain in making brand mapping techniques more available to marketing practitioners. In consumer mapping approaches, the process of eliciting brand maps from individual consumers and aggregating these individual maps into a consensus brand map can be very labor intensive and involve very specialized expertise. For example, ZMET uses extensive personal interviews and qualitative data analyses and requires specially trained personnel familiar with base

Figure 1
McDonald's Brand Map



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disciplines (cognitive neuroscience, psycholinguistics, semiotics) underlying the ZMET technique. Analytical mapping techniques can also be labor intensive in eliciting consumer perceptions of brands, but the primary roadblock here is the sophistication of the analytical techniques used for transforming individual consumer perceptions into consensus brand maps. Network analysis, for example, is a well-known technique in sociology, but the expertise to perform such analyses is currently beyond the capabilities of most marketing departments or marketing research firms.

In this article, we focus on consumer brand mapping methods and introduce a new methodology, which we refer to as Brand Concept Maps (BCM), to address these concerns. As we will argue, BCM answers the need for a mapping approach that is easier to administer, incorporates more straightforward aggregation procedures, provides greater flexibility, and produces brand maps that are reliable and valid. We present findings from two empirical studies

that illustrate the BCM methodology, describe its usefulness for marketing applications, and provide evidence of the method's reliability and validity.

We proceed as follows. First, we provide more background on consumer mapping methods, describing existing methods in detail and evaluating their strengths and weaknesses. Based on this analysis, we conclude that additional mapping options are needed and introduce the BCM approach. Next, we proceed to the first study, which describes the BCM methodology in detail, illustrates its application, and provides evidence of its reliability (split-half reliability) and validity (nomological validity). Following this, we present a second study that provides evidence of convergent validity, comparing results from the BCM technique with more conventional ways of measuring brand perceptions. In a final section, we evaluate the strengths and weaknesses of the BCM approach as well as its usefulness for brand management.

Consumer Mapping Techniques

Techniques that elicit brand maps from consumers involve three stages. The first is the elicitation stage, where important brand associations (constructs) are elicited from consumers. In the second stage, consumers map these elicited associations (constructs) to show how they are connected to one another and to the brand. In the third stage, researchers aggregate these individual brand maps and associated data to produce the final consensus brand map.

In this section, we describe how these stages are accomplished by the existing consumer mapping techniques: Zaltman's Metaphor Elicitation Technique (ZMET) and Concept Mapping. We then evaluate each method using criteria important in many branding applications: ease of administration, flexibility across research settings, and quality of obtained brand maps in terms of reliability and validity.

Zaltman Metaphor Elicitation Technique (ZMET)

Description. ZMET is designed to “surface the mental models that drive consumer thinking and behavior” (Zaltman and Coulter 1995, p. 36). A mental model includes (1) dominant constructs (variables or factors) that drive consumer thinking and behavior and (2) connections between constructs that represent the reasoning process whereby constructs affect each other. ZMET can be used for a variety of purposes, including understanding consumers’ images of brands, product categories, and product concepts (Zaltman and Coulter 1995).

The procedure for eliciting constructs is as follows. First, a small number of participants, typically 20 to 25, are recruited and introduced to the topic of the study (brand). Participants are instructed to take photographs and/or collect a minimum of 12 pictures or images that will convey their thoughts and feelings about the topic. Seven to 10 days later, the participants return with the requested materials and are engaged in two-hour personal interviews to elicit constructs. The personal interview uses several qualitative techniques to guide the elicitation. For example, respondents complete a modified version of the Kelly Repertory Grid (identifying how any two of three randomly selected pictures are similar but different from a third stimulus) and a laddering exercise (specifying the means-end chain consisting of attributes, consequences, and values). Next, several activities aimed at eliciting the visual images that represent the topic of interest are conducted.

This is followed by the mapping stage, where participants create a map or visual montage using the constructs that have been elicited. The interviewer reviews all of the constructs that have been elicited with the respondent and then asks him or her to create a map illustrating the significant connections among important constructs.

In the aggregation stage, the research team constructs a consensus map showing the most important constructs and their relationships

across all respondents. Interview transcripts, audiotapes, images, and interviewers’ notes are examined for the presence of constructs and mentions of construct pairs (two constructs related in some manner). After coding these data, decisions regarding which constructs and construct relationships to include in the consensus map are made on the basis of how frequently they are mentioned across respondents. The final map contains the chosen elements with arrows representing links between constructs.

Evaluation. ZMET’s primary advantage lies in the thoroughness of its procedures for eliciting brand associations (constructs). The combination of verbal and nonverbal elicitation methods and use of multiple qualitative research methods offers a deep understanding of the constructs that underlie consumer thinking. ZMET is especially well suited for identifying the deeper, abstract, and more unconscious aspects of products and brands (Christensen and Olson 2002). The thoroughness of the elicitation stage would appear to be particularly well suited to situations where limited data exist regarding how consumers view a brand, where branding research has been limited to traditional survey research, or where deeper and unconscious aspects of a brand need to be understood to gain a better understanding of brand identity.

Reliability and validity seem promising, but supporting evidence is limited at this point. Validation studies of ZMET have not been published, but Zaltman (1997) reports that constructs elicited using the procedure are generalizable to larger consumer populations based on validations with survey research data. However, the validity of relationships between constructs shown in consensus maps is still at issue (Zaltman 1997).

Perhaps the biggest drawback of ZMET is the difficulty of administering the technique. The process is very labor intensive, from extensive personal interviews to qualitative data analyses to determine the consensus maps (Zaltman 1997). Interviewers must be specially trained

and be familiar with the base disciplines (cognitive neuroscience, psycholinguistics, semiotics) underlying the ZMET technique, and respondents must be willing to undergo two interview sessions and devote additional time to preparing pictures and images for these interviews. These requirements limit the flexibility of using ZMET across research settings, such as focus groups and mall intercept studies. Also, because the elicitation, mapping, and aggregation stages are so intertwined, ZMET offers little flexibility for firms with extensive prior brand research, who already understand the associations consumers connect to their brand but want to understand how these associations are structured in the form of a brand map.

Concept mapping

Description. Concept maps represent knowledge as a network of interconnected nodes that contain key concepts relating to a topic, analogous to associative networks from cognitive psychology (Novak 1998). Participants are typically asked to indicate their knowledge about a topic by producing a list of the key concepts and indicating relationships among these concepts by drawing lines to connect concepts to one another.

Recently, concept mapping has been applied to the branding area. Joiner (1998) asked students to generate concept maps for several brands. Participants were given a set of instructions, including a description and example of a concept map, and asked to generate a concept map for a brand by writing down concepts they associated with the brand and linking them by lines drawn between the associations. For each association, participants were also asked to attach an affect tag (positive, negative, or neutral) to each association listed. As described, concept mapping combines the elicitation of constructs and mapping stages into one stage. The third stage, aggregation of individual data into a final brand map, is missing in this and other concept mapping applications. Because prior concept mapping applications have focused on understanding perceptions and knowledge at the individual

level, techniques for aggregating individual concept maps have not been forthcoming.

Evaluation. The most appealing features of concept mapping relate to the flexibility, reliability, and validity of the technique. Concept mapping has been used for more than 20 years in the physical sciences but has proven flexible enough for application in diverse areas such as psychiatric counseling (Martin 1985) and management (Novak 1998). Procedures for eliciting concept maps also provide some flexibility. Researchers have successfully elicited concept maps using different types of training techniques (e.g., direct instructions, provision of map examples), providing more or less structure to begin the mapping task (e.g., providing lists of concepts versus providing none at all), and using individual respondents versus groups (for a review, see Ruiz-Primo and Shavelson 1996). Although some applications of concept mapping have involved extensive and time-consuming training periods for participants, most appear reasonable in terms of time, respondent participation, and interviewer expertise.

Concept mapping also appears to offer a reliable and valid way of assessing an individual's knowledge and perceptions. Studies from the physical sciences show that concept maps are acceptable in terms of concurrent validity (i.e., concept maps correlate with other measures of knowledge) and nomological validity (i.e., concept maps are able to detect differences between experts and novices in a science field) (e.g., Markham, Mintzes, and Jones 1994; McClure and Bell 1990; Rice, Ryan, and Samson 1998; Wilson 1994). In the sole branding application, Joiner (1998) reports evidence of convergent validity as well, with individual maps being correlated with an individual's brand attitude and brand experience.

Concept mapping has drawbacks as well. In most cases, concept maps reveal accessible perceptions and associations; brand associations that require more in-depth probing are unlikely to surface using this technique. Most of the

representations are verbal in nature as well. However, the most critical drawback is the lack of procedures for aggregating individual maps into consensus brand maps. Recall that Joiner's (1998) work focused on eliciting individual brand maps and did not produce consensus brand maps across individuals. Elicitation methods have not been developed with aggregation in mind, and aggregation techniques are lacking. Finally, the reliability and validity of consensus brand maps are at issue, given that the evidence to date pertains to individual-level concept maps only.

Discussion

Existing techniques offer promising ways to understand how consumers think about brands. ZMET appears to be particularly effective in the elicitation stage, encouraging consumers to evoke brand associations through multiple qualitative techniques that tap both verbal and nonverbal constructs. Concept mapping, in contrast, appears to be particularly effective in the mapping stage, encouraging respondents to think deeply about how brand associations are linked to one another in the process of building individual brand maps.

Yet, in many ways, these techniques do not meet the needs of many marketing practitioners. In particular, there is a need for a brand mapping approach that is easier to administer, with less labor-intensive processes in the elicitation and aggregation stages. Also welcome would be procedures that do not require specialized expertise and training for interviewers or data analysts. A more flexible procedure that could be modified for different research settings and a less time-intensive procedure for respondents would be a plus as well. A less laborious and time-intensive procedure would also enable the collection of data for larger sample sizes, allowing analyses of brand maps by different customer segments. Finally, methods that would enable firms to capitalize on existing brand research, which provides the same data as the elicitation stage, would be more cost-effective in many situations.

To answer these needs, brand mapping methods will need to incorporate more structured elicitation, mapping, and aggregation procedures. Existing procedures have the advantage of allowing consumers complete freedom to express whatever associations they have with a brand and to describe connections between these brand associations. However, the unstructured nature of these techniques complicates the task of eliciting individual brand maps and aggregating these maps into consensus brand maps. Incorporating more structure into these techniques would provide an option that is easier to administer, more flexible, and easier to analyze.

To provide such an option, we offer a new methodology for producing brand maps, called Brand Concept Maps (BCM). We introduce structure into the elicitation stage by providing respondents with a set of brand associations that are used in the mapping stage. The mapping stage is more structured as well, asking respondents to use the provided set of brand associations to build an individual brand map that shows how brand associations are linked to each other and to the brand as well as how strong these linkages are. The aggregation stage is also more structured, by providing a step-by-step process for analyzing individual brand maps and extracting the most common thinking about how brand associations are structured. As such, BCM offers an option for researchers willing to trade the advantages of unstructured techniques for a less tedious, less costly, more flexible, and perhaps more reliable and valid way to produce brand maps.

We provide details of the BCM methodology in the next section. In Study 1, we provide a detailed description of the elicitation, mapping, and aggregation procedures and evaluate aspects of the technique's reliability and validity. In Study 2, we further evaluate the robustness of the BCM technique by assessing convergent validity, comparing BCM's ability to assess brand perceptions to the capabilities of more traditional survey techniques.

Study 1

Overview

In this study, we used BCM to produce a consensus brand map for a premier healthcare brand, the Mayo Clinic. Doing so afforded several opportunities to test the capabilities of the BCM technique. First, the Mayo Clinic is a complex brand with many brand associations, including sentiments such as “leader in medical research,” “best doctors in the world,” and “known worldwide.” This provided a strong test situation for BCM, because larger arrays of brand associations result in more possible combinations of these associations in a network structure, making it difficult to isolate a consensus brand map across consumers. Second, the Mayo Clinic brand elicits a wide variety of associations, including those based on attributes (e.g., “leader in medical research”), brand personality (e.g., “caring and compassionate”), and emotions (e.g., “it comforts me knowing that the Mayo Clinic exists”). This allowed us to see if BCM could incorporate different types of associations into consensus brand maps. Third, because the Mayo Clinic is a brand with very distinct user segments (patients versus nonpatients), we could test whether BCM would work equally well for users, who share experiences and brand associations in common, and nonusers, who have more indirect knowledge and perhaps fewer brand associations in common.

Method

Sample. A total of 165 consumers from two midwestern cities participated in the study. Ninety subjects were current or former patients at the Mayo Clinic. Patients were randomly selected from the Mayo Clinic database, sent a prenotification letter from the Mayo Clinic asking for their participation, and recruited by phone by marketing research firms in both cities. Seventy-five subjects were nonpatients of the Mayo Clinic who were recruited and screened by marketing research firms. Age and gender quotas were used for both samples to obtain a broader set of respondents. All subjects received monetary compensation for their participation.

Procedure. All interviews were conducted one-on-one with a trained interviewer. Participants were told that they would be participating in a study of what consumers think about different healthcare organizations and that they had been chosen to answer questions about the Mayo Clinic. Respondents were encouraged to express their own opinions, whether positive or negative, and they were told that the researchers were not employees of the Mayo Clinic.

Participants were guided in building their brand maps in four steps: (1) brand association selection and elicitation, (2) brand concept map explanation by the interviewer, (3) brand concept map development, and (4) brand evaluation. In the first step, participants were asked to consider the question “What comes to mind when you think about the Mayo Clinic?” To help them with this task, respondents were shown a poster board containing laminated cards, with each card representing a different brand association for the Mayo Clinic (e.g., “treats famous people from around the world” and “has excellent doctors”). The set of brand associations appearing on these cards was developed from prior brand research conducted by the Mayo Clinic, content analyses of our own pretests conducted on nonpatient populations, and extensive consultations with members of the Mayo Clinic Brand Team. Special attention was given to phrasing the brand associations to make them consistent with the way consumers spoke about the brand. The result was a set of 25 brand associations used in the BCM task. Respondents were told that they could use any of the statements on the poster board and could add other thoughts or feelings by writing them down on blank laminated cards provided. All of the chosen cards were put onto a second poster board to complete this step.

The second step involved explaining the nature and purpose of brand concept maps. Respondents were shown a brand concept map of the Volkswagen Beetle (see Figure 2). This example was used to describe the types of associations that might be included on the map, how associ-

Figure 2
Brand Concept Map for Volkswagen Beetle



ations might be linked to the brand (directly linked, such as “inexpensive to drive,” or indirectly linked, such as “good MPG”), and how associations might be linked to each other (e.g., “good MPG” causes a Volkswagen to be “inexpensive to drive”). The Volkswagen Beetle map also included different types of lines connecting associations—single, double, or triple lines. Participants were told that these lines indicated how strongly an association was connected to the brand or to another association, with more lines indicating a stronger connection. Subjects were then given an opportunity to ask questions about the brand map example.

The third step involved the development of the brand concept map for the Mayo Clinic. For this purpose, respondents were given a blank poster board with the brand name (The Mayo Clinic) in the center. They were instructed to use the laminated cards they had previously selected, and they were given a variety of types of lines (single, double, triple) for connecting the laminated cards on their poster board. Respondents were given as much time as they

needed and were allowed to look at the Volkswagen Beetle map for reference.

In the final step, participants were asked to indicate their feeling about the brand using a number ranging from 1 (extremely negative) to 10 (extremely positive), which was then marked on their brand concept map in the center by the brand name. After completing their map, participants were asked several questions about their prior experience with the Mayo Clinic, degree of familiarity with the Mayo Clinic, closeness of their relationship with the Mayo Clinic, and demographics. The familiarity and relationship questions were included to allow comparisons between groups varying on these dimensions for subsequent validity analyses. Respondents were then thanked, debriefed about the study, and dismissed. Respondents completed the entire brand concept mapping procedure in 15 to 25 minutes on average.

Results

The analysis proceeded along two lines. First, data from Mayo Clinic patients and nonpatients were analyzed to assess the appropriateness of our aggregation procedures for these segments. Additionally, data from the (larger) patient sample were utilized for a split-half reliability analysis. The second line of analysis focused on nomological validity, involving comparisons of brand maps for different groups based on their familiarity and relationship with the brand. Both lines of analysis are described in detail below.

Brand Concept Maps: Coding and Measures.

The first step in analyzing the data was to code all of the information contained in each respondent’s map. Each map was coded to specify the presence or absence of each of the 25 brand associations and the type of connecting line (single, double, triple) used to connect each association to the brand or another brand association.¹ Also recorded was the level at which each brand association was placed on the map (e.g., level 1 = directly connected to the brand name; level 2 = connected underneath a level 1

Table 1
Study 1: Brand Concept Map Measures for Nonpatients

	Core Associations		First-Order Associations			
	Frequency of mention	Number of interconnections	Frequency of first-order mentions	Ratio of first-order mentions (%)	Subordinate connections	Superordinate connections
Leader in medical research	61	68	37	60.7	24	44
Known worldwide	60	63	42	70.0	18	45
Treats patients with rare and complex illnesses	54	70	14	25.9	40	30
World leader in new medical treatments	54	74	32	59.3	22	52
Expert in treating serious illnesses	54	76	16	29.6	38	38
Latest medical equipment and technology	49	56	15	30.6	34	22
Can figure out what's wrong when other doctors can't	47	54	19	40.4	28	26
Top-notch surgery and treatment	42	46	10	23.8	32	14
Best patient care available	40	60	14	35.0	26	34
Best doctors in the world	39	54	24	61.5	15	39
Doctors work as a team	35	45	8	22.9	27	18
It comforts me knowing Mayo exists if I ever need it	34	31	14	41.2	20	11
Treats famous people from around the world	31	25	13	41.9	18	7
Leader in cancer research and treatment	30	41	13	43.3	17	24
Can be trusted to do what's right for patients	29	33	5	17.2	24	9
People I know recommend Mayo	29	31	12	41.4	17	14
Publishes health information to help you stay well and get well	25	22	11	44.0	14	8
Caring and compassionate	20	21	9	45.0	11	10
Approachable, friendly doctors	11	12	0	0.0	11	1
Court of last resort	10	9	2	20.0	8	1
Expensive	9	7	6	66.7	3	4
Very big and intimidating	8	7	7	87.5	1	6
Cares more about people than money	8	8	2	25.0	6	2
Hard to get into unless very sick or famous	6	7	2	33.3	4	3
Uses its reputation to make money	4	3	1	25.0	3	0

Note: N = 75 subjects. Core brand associations in bold.

association) as well as the associations linked above and below each brand association on the map. Using this coding, we were able to summarize the entire brand association network for every respondent and computerize the data, making the maps suitable for further quantitative analysis and aggregation.

Next, measures were developed to determine what brand associations were most frequent,

whether these brand associations were linked directly to the Mayo Clinic brand and/or to other brand associations, and with what intensity these connections occurred. These measures are shown in Table 1 (nonpatients) and Table 2 (patients). The first two measures—frequency of mention and total number of interconnections—indicate the extent to which each brand association is important or “core” to the consumers’ view of the brand. *Frequency of mention* is

Table 2
Study 1: Brand Concept Map Measures for Patients

	Core Associations		First-Order Associations			
	Frequency of mention	Number of interconnections	Frequency of first-order mentions	Ratio of first-order mentions (%)	Subordinate connections	Superordinate connections
Expert in treating serious illnesses	64	75	34	53.1	30	45
Latest medical equipment and technology	60	60	22	36.7	38	24
Leader in medical research	54	54	41	75.9	13	44
Known worldwide	54	54	37	68.5	17	27
Top-notch surgery and treatment	53	53	21	39.6	32	22
Best doctors in the world	51	51	29	56.9	22	52
World leader in new medical treatments	51	51	23	45.1	28	41
Can be trusted to do what's right for patients	51	51	22	43.1	29	25
Doctors work as a team	50	50	20	40.0	30	34
Best patient care available	49	49	33	67.3	16	45
Treats patients with rare and complex illnesses	49	49	23	46.9	26	18
Can figure out what's wrong when other doctors can't	49	49	15	30.6	35	22
Publishes health information to help you stay well and get well	44	44	19	43.2	25	9
Approachable, friendly doctors	44	44	15	34.1	29	21
Caring and compassionate	42	42	19	45.2	23	19
Treats famous people from around the world	38	38	13	34.2	25	0
It comforts me knowing Mayo exists if I ever need it	36	36	19	52.8	18	15
People I know recommend Mayo	30	30	19	63.3	11	4
Leader in cancer research and treatment	29	29	11	37.9	18	5
Cares more about people than money	27	27	14	51.9	13	7
Court of last resort	12	12	5	41.7	7	1
Hard to get into unless very sick or famous	5	5	1	20.0	4	1
Very big and intimidating	3	3	3	100.0	0	4
Expensive	3	3	1	33.3	2	1
Uses its reputation to make money	3	3	1	0.0	2	1

Note: N = 90 subjects. Core brand associations in bold.

simply a count of the number of times a particular brand association occurs across individual maps. For example, “leader in medical research” and “known worldwide” were the most frequently mentioned brand associations among our nonpatient sample. *Number of interconnections* is a count of the number of times that a particular brand association is connected to other brand associations. In the belief and attitude structure literature, interconnectivity is

often viewed as indicative of how “central” an element is within an overall belief system (Eagly and Chaiken 1993; Rokeach 1968). For example, “expert in treating serious illnesses” was the most interconnected of all brand associations for nonpatients.

The next set of measures shown in tables 1 and 2 provides direction for where the core brand associations should be placed on the composite

brand map. In particular, these measures determine which of the core brand associations should be linked directly to the brand and which should be connected to other associations. *Frequency of first-order mentions* is simply a count of the number of times that a brand association occurs on maps as directly linked to the brand. For example, “known worldwide” and “leader in medical research” were most frequently connected directly to the Mayo Clinic in nonpatient brand maps. *Ratio of first-order mentions* is computed as the number of times that a brand association is linked directly to the brand divided by the number of times that the same brand association occurs on maps in any location. Almost all of the top brand associations in tables 1 and 2 occur frequently as direct links to the brand. Type of interconnections, *superordinate* and *subordinate*, provides an indicator of whether the brand association appears in a superordinate position (most associations linked below it) or subordinate position (most associations linked above it) in the network. As we will describe next, brand associations that score high on these three measures are the best candidates for being placed as direct connections to the brand.

Brand Concept Maps: Constructing

Consensus Maps. The next step in the analysis was to use the measures described above to develop a consensus brand map of the Mayo Clinic for patient and nonpatient groups. A four-step process was used.

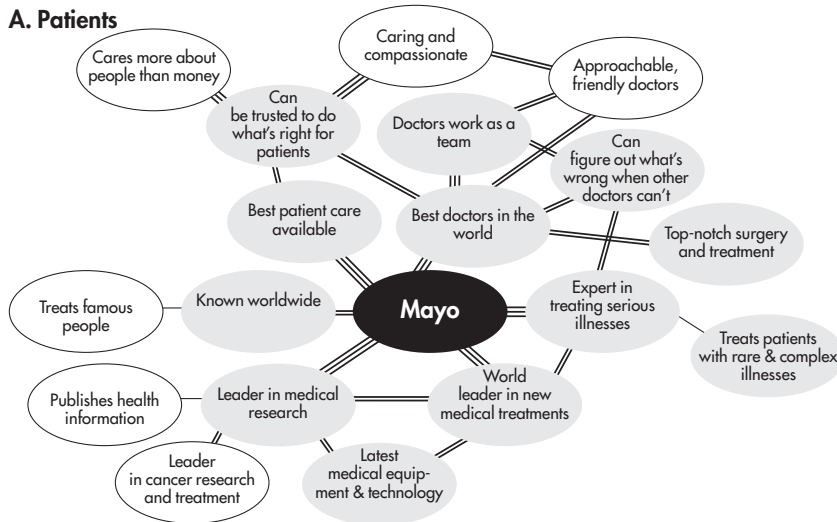
The *first step* involved identifying the core brand associations that best describe the brand. Two measures were used for this purpose: frequency of mention and number of interconnections. Brand associations included on at least 50% of the maps were identified as core brand associations, with consideration given to associations with borderline frequencies (e.g., 48%–49%) that had a very high number of interconnections. The 50% cutoff was established to reflect the view that key brand associations should be mentioned by a majority of consumers, consistent with similar 50% cutoff levels in many

content analyses of brand/product attributes, beliefs, and values (Sirsi, Ward, and Reingen 1996; Reynolds and Gutman 1988; Zaltman and Coulter 1995). Applying these measures to our data revealed 10 core brand associations for nonpatients (see Table 1, core associations in bold) and 12 core brand associations for patients (see Table 2, core associations in bold). Interestingly, patients and nonpatients share 10 core brand associations in common, with two additional brand associations appearing for patients. These additional associations—“doctors work as a team” and “can be trusted to do what’s right for patients”—are experience-based beliefs that patients are likely to share in greater numbers than nonpatients.

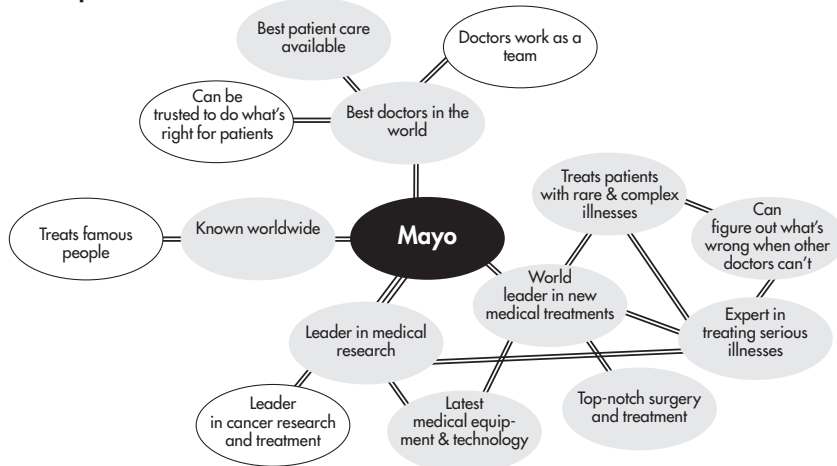
In the *second step*, we determined which of the core brand associations should be placed on the consensus map as direct links to the Mayo Clinic brand. These associations, which we refer to as first-order associations, were identified with the help of three main measures: frequency of first-order mentions, ratio of first-order mentions, and type of interconnections. Brand associations with a high number of first-order mentions, with first-order mentions constituting at least 50% of their total mentions on consumer maps, were considered to be prime candidates for inclusion as first-order associations. Brand associations meeting these requirements were examined further to see if the types of interconnections were consistent with placement of the brand association on the first tier of the brand network. The guideline here was that the brand association should have more interconnections in which it occupied a superordinate position (above another association) than a subordinate one (below another association). Applying these rules to our data, we identified four first-order associations for nonpatients and six first-order associations for patients. Patients and nonpatients share four of these associations in common, with patients adding “best patient care available” and “expert in treating serious illnesses” to the set. Once again, it makes sense that patients would mention more associations directly related to their experiences, whereas

Figure 3
Study 1: Brand Concept Map by Patient Types

A. Patients



B. Nonpatients



Note: N = 90 patients and 75 nonpatients. The gray circle signifies core associations and the white circle signifies noncore associations.

nonpatients are more limited to associations based on reputation, such as “known worldwide” or “leader in medical research.” With these results, the consensus brand map for patients (nonpatients) was drawn with six (four) brand associations placed as direct links to the Mayo Clinic brand (see Figure 3).

The *third step* involved an assessment of brand association links to determine where to place the remaining core brand associations on the map and what connections between brand asso-

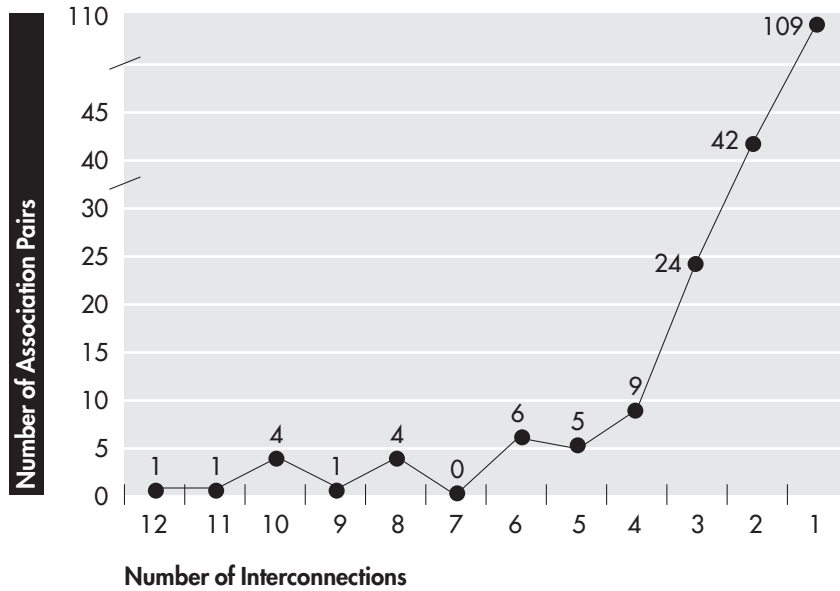
ciations to include on the map. Up to this point, our analysis had yielded a total of 12 (10) core brand associations for patients (nonpatients), with 6 (4) of them placed as direct links to the Mayo Clinic brand. Thus, the remaining core brand associations needed to be placed on the consensus map.

These decisions were based on several considerations. First, we examined frequencies of links between associations. For example, we found that the association “world leader in new medical treatments” was frequently connected above the association “treats patients with rare and complex illnesses.” Second, we evaluated how rare or how common certain linkages were across maps. As shown in Figure 4, some of the linkages between brand associations are clearly more salient to consumers, noted by higher frequencies, whereas others are more idiosyncratic in nature, being linked on only a few maps. The frequencies shown here represent linkages between associations in one direction only, and the vast majority of possible links between associations for patients (394 out of a possible 600) and nonpatients (384 out of a possible 600) were never included on even a single individual’s brand map. In deciding what frequency level to use as a cutoff point, designating which association links would or would not be included in the consensus map, our decision rule was to look for a sharp increase in frequency counts on the graphs. For example, in the patient data in Figure 4, it is clear that the large number of brand-association pairs linked once or twice by our respondents (109 pairs and 42 pairs, respectively) would produce a cluttered and probably incomprehensible consensus map if they were placed on the final map. Using this decision rule, we determined the final set of brand associations and association linkages for inclusion in the consensus brand maps for patients and nonpatients (refer to Figure 3).

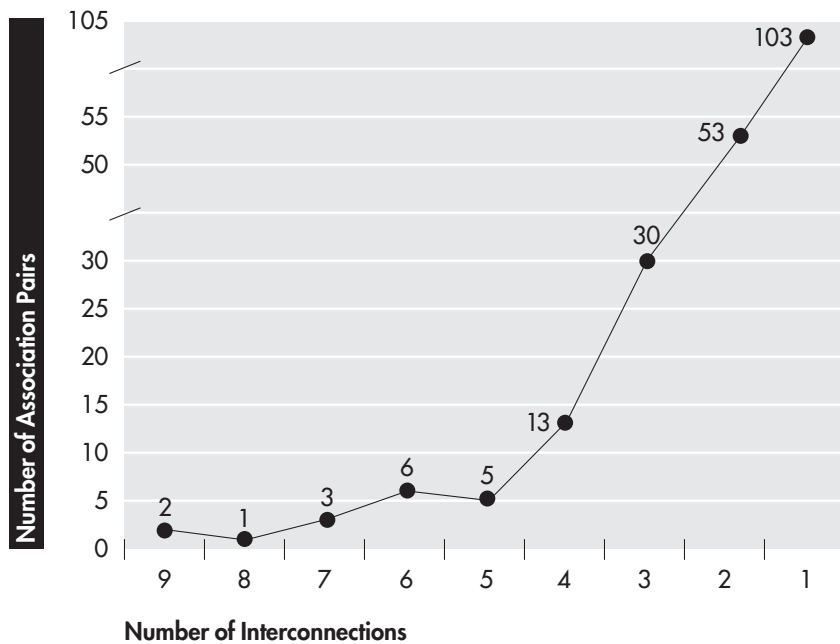
In the *fourth step*, we assessed whether certain noncore brand associations should be added to the maps, due to their frequent linkages to core associations. Although the consensus brand

Figure 4
Study 1: Analysis of Brand Association Links

A. Patients



B. Nonpatients



associations to the consensus map, we selected brand association pairs identified from step three that involved a core brand association linked to a noncore brand association (see Figure 3, in which noncore associations are shown as a white circle).

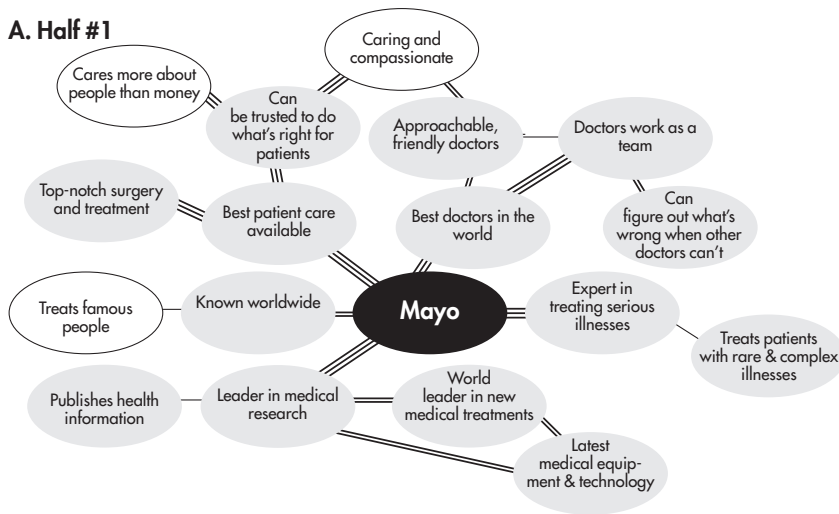
The final brand concept maps, for patients and nonpatients, are shown in Figure 3. Note that different types of lines (single, double, triple) on the map signify the intensity of the connection between brand associations. Decisions as to which type of line to use for each connection were based on the average type used across individual brand maps. For example, the double line between “best patient care available” and “can be trusted to do what’s right for patients” was determined by looking at how frequently patients used single, double, and triple lines to connect these two associations on their maps.

Several observations emerge upon comparing the maps for patients and nonpatients. As we might expect, patients have direct experiences with the Mayo Clinic in common, which yields consensus maps with more core brand associations, more first-order brand associations, more links, and stronger connections between associations, especially for those associations directly linked to the Mayo Clinic brand. Also interesting is the type of additional brand associations included on the patient map, which tend to have more of an affective nature. Brand associations such as “caring and compassionate” and “cares more about people than money” suggest a view of the brand that goes beyond the stellar reputation of the Mayo Clinic as a world leader in patient care, research, and new treatments. Our BCM procedure seems to capture these experience-based associations well. At the same time, the BCM procedure also appears to reflect the brand perceptions of nonpatients as well, allowing them to express their views that have been formed as a result of word-of-mouth communication, news of famous people being treated at the clinic, impressions gathered from Mayo Clinic newsletters, and indirect experience through friends and relatives.

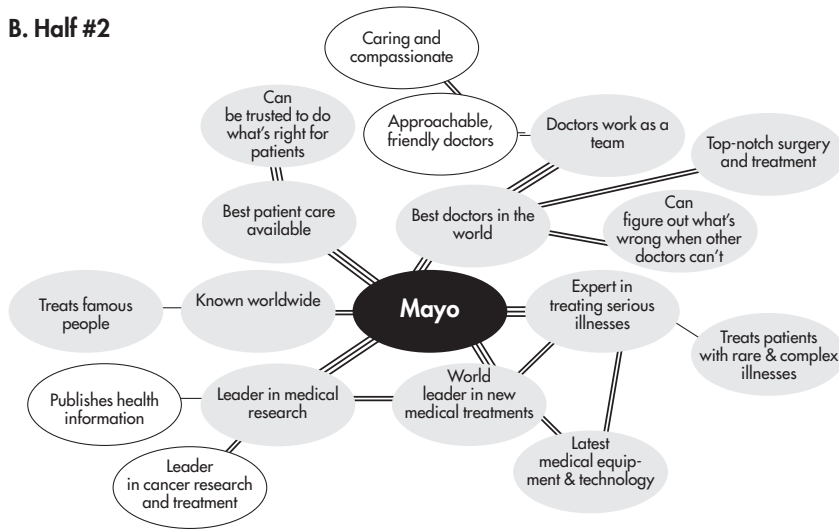
map could be restricted to core brand associations, it is often important for managers to see associations that drive consumer perceptions of the core brand associations. To add noncore

Figure 5
Study 1: Brand Concept Map by Patient Split-halves

A. Half #1



B. Half #2



Note: $N = 45$ patients per half. The gray circle signifies core associations and the white circle signifies noncore associations.

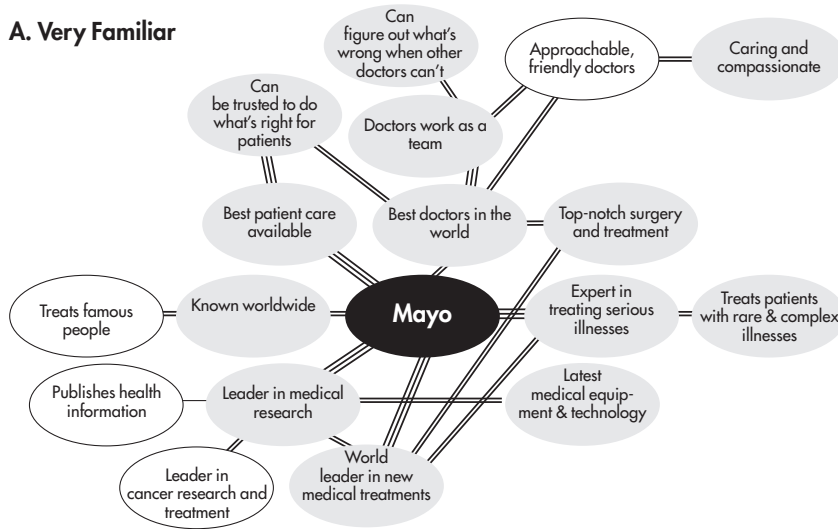
Split-Half Reliability. Next, we tested the important issue of reliability. Using the patient sample, chosen due to its larger sample size, we randomly divided the individual concept maps into two halves. For each half, we repeated the procedure for aggregating individual brand maps into a consensus map. Comparing the split-half maps, shown in Figure 5, it appears that there is at least a moderate degree of consistency. Each map has 17 brand associations, with 16 of these associations shared across maps. The first split-half map has five first-order associations, all

connected to the Mayo Clinic brand with triple lines, except for a two-line connection with “known worldwide.” The second split-half map features the same first-order associations, connected by the same number of lines, although one additional association (“world leader in new medical treatments”) is pictured. Many of the links between first-order and second-order associations are the same, such as “best doctors in the world”—“doctors work as a team” and “world leader in new medical treatments”—“latest medical equipment and technology,” with exactly the same number of lines linking the associations. There are a few differences as well. For example, “top-notch surgery and treatment” is connected to “best patient care available” for the first split-half map, but it is connected to “best doctors in the world” on the second split-half map.

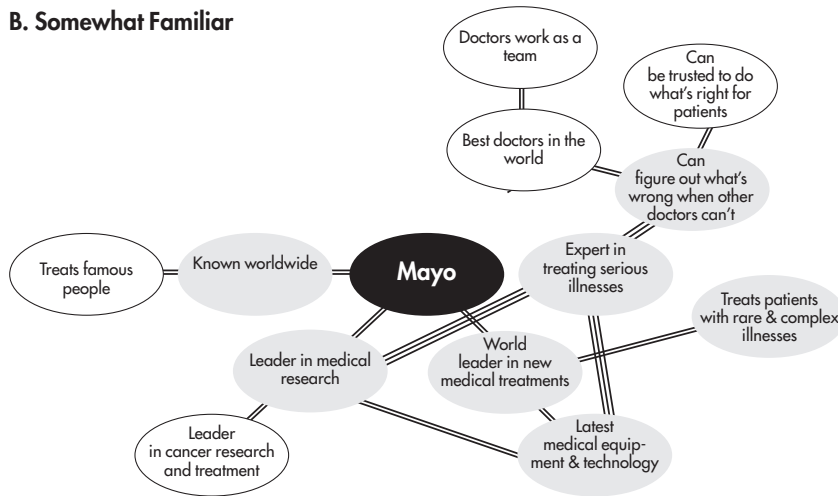
To provide a quantitative analysis of split-half reliability, we coded each consensus brand map for (1) the presence/absence of each of the possible 25 brand associations as a core association, (2) the presence/absence of each of the possible 25 brand associations as a first-order association, and (3) the presence/absence of each of the possible links between the 25 brand associations. In each case, the brand association or association link was coded as a “1” if present and “0” if absent. Correlations were computed across split-half maps using these codes, which were highest for the presence of core brand associations ($\Phi = .923, p < .01, N = 25$), moderately high for the presence of first-order brand associations ($\Phi = .781, p < .01, N = 25$), and moderate for the presence of particular brand association links ($\Phi = .496, p < .01, N = 300$). These correlations generally confirmed our visual inspection of the split-half maps, with the exception of the correlation for brand association links. Because so many of the 300 possible association links are absent in both maps, the split-half correlation may have been adversely affected by low variance. To obtain a clearer picture, we tabulated the percentage of times that association links were either present or absent on both maps, indicating a matching per-

Figure 6
Study 1: Brand Concept Map by Familiarity Types

A. Very Familiar



B. Somewhat Familiar



Note: The gray circle signifies core associations and the white circle signifies noncore associations.

centage of 96%. A similar analysis yielded a figure of 96% for core brand association matches and 92% for first-order brand association matches.

Overall, the picture that emerges is that the split-half reliability of the consensus brand maps is acceptable, particularly for core brand associations and first-order brand associations. The split-half reliability for brand association links is lower but still solid given the relatively small sample sizes for the split-halves. Clearly, there is more opportunity for variability as brand associations are added beyond those dir-

ectly linked to the brand; this could be minimized by reducing the set of brand associations given to participants prior to building their maps or by increasing the sample size.

Nomological Validity: Familiarity Groups.

We pursued evidence of nomological validity by comparing brand maps for groups of respondents that should differ in predictable ways. Our first analysis compared groups of respondents that differed in level of familiarity with the Mayo Clinic. Given that familiarity is a dimension of expertise, we expected to see a number of typical expert-novice differences in our comparisons. Experts typically have knowledge structures that are more complex and highly integrated, which would translate into more brand associations, more brand association links, stronger brand association links (e.g., more double or triple lines), and greater hierarchical structuring (e.g., more third-order or fourth-order associations) in our brand mapping context (cf. Novak and Gowin 1984).

We proceeded with the analysis by splitting our respondents into two groups: “very familiar” and “somewhat familiar.” As expected, the vast majority of patients (81%) indicated being very familiar, but a substantial percentage of nonpatients (21%) also considered themselves to be very familiar. Many nonpatients knew someone who had been treated at the Mayo Clinic and could possibly have been involved in their treatment. The majority of nonpatients (56%) and a sizeable number of patients (17%) identified themselves as being somewhat familiar. To obtain reasonable sample sizes for analysis, we limited our analysis to the “very familiar” and “somewhat familiar” groups.

To assess whether our BCM methodology was capable of picking up these types of expert-novice differences, we conducted two types of analysis. First, we used our aggregation procedures to produce a consensus brand map for both familiarity groups (see Figure 6). A comparison of these maps makes clear that the map for the “very familiar” group has a more com-

Table 3
Study 1: Means and Standard Deviations by Group

	Familiarity		Relationship Type		
	Very familiar	Somewhat familiar	Best friend	Casual friend	Casual acquaintance
Total number of beliefs	12.01 ^a (4.44)	10.04 ^b (3.94)	12.50 ^a (4.56)	10.50 ^b (4.01)	9.17 ^b (3.33)
Total number of first-level links	5.35 (3.17)	4.79 (3.05)	5.90 ^a (3.96)	4.61 ^{a,b} (1.81)	4.00 ^b (1.53)
Total number of second-level links	4.38 (2.73)	3.75 (2.75)	4.30 (2.70)	3.94 (2.59)	3.83 (2.78)
Total number of third-level links	1.69 ^a (1.19)	1.11 ^b (1.20)	1.75 ^a (1.64)	1.45 ^{a,b} (1.50)	.95 ^b (.96)
Total number of fourth-plus level links	.59 (1.02)	.37 (.98)	.54 (1.24)	.51 (.88)	.36 (.98)
Total number of links	12.03 ^a (4.46)	10.04 ^b (3.94)	12.53 ^a (4.59)	10.51 ^b (4.01)	9.17 ^b (3.33)
Total number of relationship belief links	2.34 ^a (1.70)	1.30 ^b (1.16)	2.53 ^a (1.67)	1.55 ^b (1.43)	1.10 ^b (1.07)
Total number of first-order relationship belief links	.92 ^a (1.12)	.51 ^b (.83)	1.00 ^a (1.28)	.55 ^b (.64)	.50 ^b (.77)
Total number of single lines	2.68 (2.14)	2.72 (2.59)	2.69 (2.43)	2.37 (2.12)	2.81 (2.33)
Total number of double lines	4.06 (2.45)	3.94 (2.00)	4.16 ^a (2.35)	4.29 ^a (2.34)	3.10 ^b (1.88)
Total number of triple lines	5.27 ^a (2.90)	3.35 ^b (3.02)	5.66 ^a (3.81)	3.84 ^b (2.19)	3.24 ^b (2.64)

Note: Cells with different superscripts differ from one another at $p < .05$. Standard deviations in parentheses.

plex structure, with more brand associations and more interconnections between associations.

A second analysis was performed to see if these findings could be corroborated with brand concept maps at the individual level. This also provided a check on our aggregation procedures, evaluating whether expert-novice differences found in the consensus brand maps were reflective of expert-novice differences in individual brand maps. For this analysis, we coded each respondent's brand map for the following features: (1) number of brand associations, (2) number of brand associations at the first, second,

third, and fourth-plus levels, (3) number of links between brand associations, and (4) number of single, double, and triple lines. Similar measures have been used extensively in the concept mapping literature to evaluate the structural complexity of knowledge structures (see Novak and Gowin 1984) and to examine differences between groups varying in expertise, instruction, or performance (for an example, see Joiner 1998; Wallace and Mintzes 1990).

Means and standard deviations for both familiarity groups are shown in Table 3. An analysis of variance of the data revealed that the "very

familiar” group has brand concept maps with more brand associations, more brand association links, stronger brand association links (evidenced by a greater number of triple lines), and more hierarchical branching (evidenced by more third-level links). Thus, the expert-novice findings from this analysis converge with those obtained using the consensus brand maps. The expected expert-novice differences emerge quite clearly, providing evidence of nomological validity as well as evidence that our consensus brand maps capture the essence of individual maps without noticeable aggregation bias.

Nomological Validity: Relationship Groups.

We pursued additional evidence of nomological validity by examining differences among groups varying in their characterizations of their relationship with the Mayo Clinic. In the brand relationship literature, a consumer and a brand are conceptualized as being engaged in a dyadic relationship similar to a relationship between two people (Fournier 1998). One of the key dimensions along which relationships vary is in the degree of closeness and intimacy (Berscheid and Peplau 1983). To represent this dimension, we asked subjects to characterize their relationship with the Mayo Clinic as either best friend, casual friend, or casual acquaintance. As described in the relationship literature (Hays 1984), these categories differ in terms of intimacy, breadth of relationship, and depth of relationship. “Best friends” characterizes the most intimate relationships—relationships with greater levels of interaction and greater personal involvement and affect. Across our sample, the percentages of respondents characterizing their relationship with the Mayo Clinic as best friend, casual friend, and casual acquaintance were 42.9%, 31.3%, and 25.8%, respectively.²

We expected to see a number of interesting differences in the brand concept maps for consumers describing the brand as a best friend, casual friend, or casual acquaintance. Because greater intimacy implies that the partners have a great deal of knowledge about each other, we would expect consumers who describe a brand

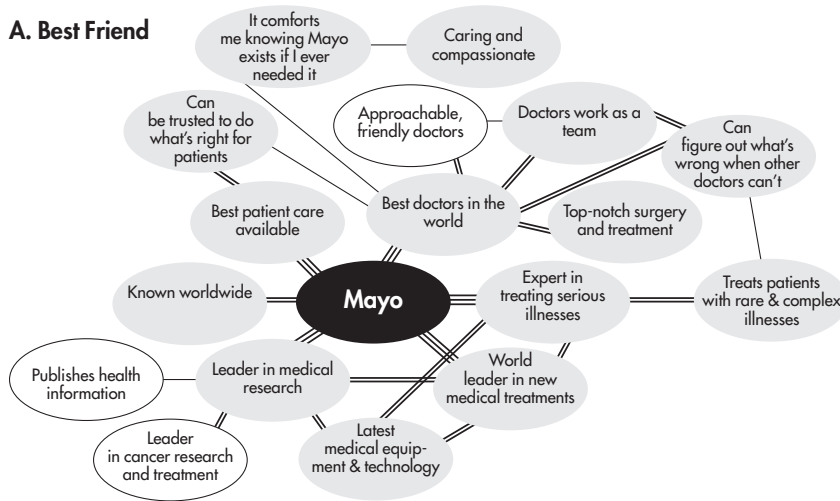
as a best friend to have more complex brand concept maps featuring a greater number of associations, more hierarchical structure, a greater number of association links, and more intense connections between associations (double or triple lines) than would the other two relationship groups. Differences between the “casual acquaintance” and “casual friend” groups were also expected, although the number or significance of the differences might not be as strong. Apart from complexity of brand maps, additional differences in the types of brand associations pictured on the maps were expected here as well. Recall that some of the brand associations used in this case have a strong relationship quality, such as “caring and compassionate” and “can be trusted to do what’s right for patients.” Given our description of relationship types, we expected to see these types of relationship associations mentioned more frequently among the “best friend” group than among either the “casual acquaintance” or “casual friend” groups.

As before, we conducted two types of analysis to assess whether the BCM methodology was able to pick up differences between brand relationship groups. First, we used our aggregation procedures to produce a consensus brand map for those participants who related to the Mayo Clinic brand as a best friend, casual friend, or casual acquaintance (see Figure 7). Comparing maps, it is apparent that the “best friend” map is the most complex and the “casual acquaintance” map is the least complex, with the “casual friend” map falling between these two extremes. Differences at the ends of the relationship spectrum are readily apparent, with the “best friend” map having twice as many core brand associations, first-order brand associations, and brand association links as the “casual acquaintance” map. In addition, maps for individuals viewing the brand as a best friend or casual friend include relationship associations such as “caring and compassionate,” whereas the map for the casual acquaintance group does not.

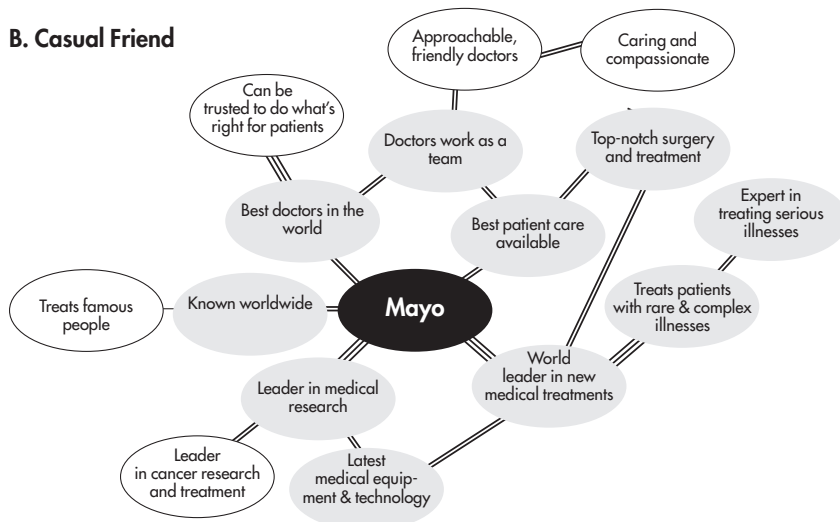
A second analysis was performed to see if these findings could be corroborated with brand

Figure 7
Study 1: Brand Concept Map by Relationship Types

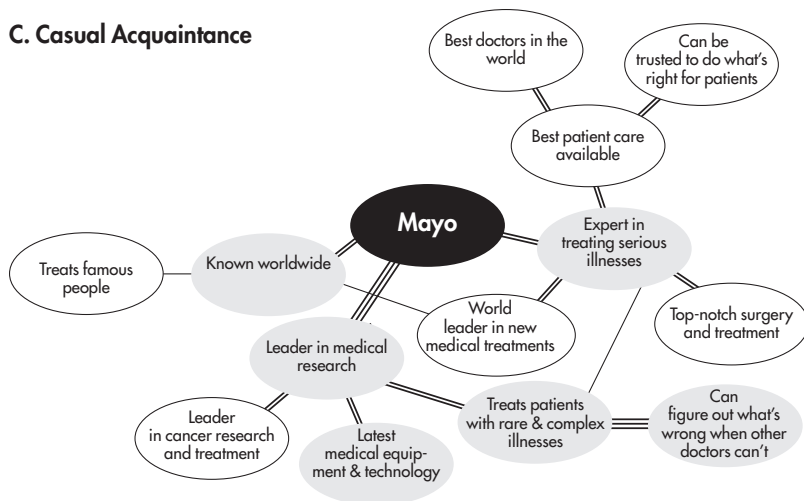
A. Best Friend



B. Casual Friend



C. Casual Acquaintance



Note: - $N = 70$ subjects for "best friend" group, 51 for "casual friend" group and 42 for "casual acquaintance" group. The gray circle signifies core associations and the white circle signifies noncore associations.

concept maps at the individual level. As before, we coded each individual map for the following features: (1) number of brand associations, (2) number of brand associations at the first, second, third, and fourth-plus levels, (3) number of links between brand associations, and (4) number of single, double, and triple lines. We also included a measure of the number of relationship associations included in the maps.

Means and standard deviations for relationship groups are shown in Table 3. An analysis of variance of the data revealed that the "best friend" group has brand concept maps with more brand associations, more first-order brand associations, more brand association links, stronger brand association links (evidenced by the greater number of triple lines), and more relationship associations than either of the other two groups. The "best friend" map also has more third-order brand associations and more double lines than the "casual acquaintance" map. In contrast, the maps of individuals viewing the brand as a casual friend or casual acquaintance show few differences, with the only significant one being stronger brand association links (evidenced by the greater number of double lines) for the "casual friend" map.

Comparing the observations from the consensus brand maps and the findings from the analysis of individual brand concept maps yields an interesting anomaly. The consensus brand maps for the "casual friend" and "casual acquaintance" groups appear to be quite different, yet the analysis of individual-level maps for these groups indicates few differences. The most probable explanation is that the small sample size for the "casual acquaintance" group ($N = 42$) yielded a less complex composite map, even though the analysis of individual maps in this group indicates no differences from maps produced by individuals in the "casual friend" group. As noted before, sample size appears to be an issue in developing stable composite maps, with sample sizes closer to 55 or 60 producing better maps in this regard.

Discussion

In this study, we described the BCM methodology, illustrated its usefulness, and assessed its reliability and validity. BCM was able to capture the brand perceptions of consumers to produce brand maps showing the important core brand associations and their interconnections. Analyses of split-half reliability and nomological validity provided evidence that our elicitation, mapping, and aggregation procedure yielded consensus maps that not only were reliable but also were valid depictions of the perceptions of different groups of consumers.

As argued earlier, many of the benefits of BCM derive from the structured nature of the elicitation, mapping, and aggregation procedure illustrated here. Using prior research on the Mayo Clinic brand, we were able to structure the elicitation procedure to make it easier for respondents and to provide more standardized responses for the mapping stage. This type of structure also afforded the opportunity to aggregate individual brand maps into consensus maps with a relatively straightforward procedure.

A logical question at this point is how BCM would compare with existing techniques that elicit brand perceptions using structured techniques. In particular, how would the results from BCM compare to more traditional survey methods for measuring brand perceptions using attribute rating scales? Although BCM is designed to capture the hierarchical structure of brand associations, which is beyond the scope of most survey methods, there should nevertheless be some convergence between them. For example, if consumers agree strongly with the statement that the Mayo Clinic has the “best doctors in the world,” one would expect to see this association emerge as a core brand association (and probably a first-order association) using the BCM methodology. Convergence not only would provide additional validation for BCM but also would suggest that structured rating scale approaches commonly found in branding research could be supplemented quite readily by brand mapping approaches.

We examined these possibilities in a second study. From a new sample of consumers, we asked half to provide their perceptions of the Mayo Clinic using our BCM methodology and gave the other half a traditional battery of attribute rating scales for the brand associations included in the BCM task. We describe the methodology in more detail below.

Study 2

Method

Sample. Respondents were recruited by a marketing research firm in a mall-intercept study. Shoppers between the ages of 21 and 75 who possessed at least a high-school education, who were aware and at least somewhat familiar with the Mayo Clinic, and who did not work at the Mayo Clinic or have relatives working at the Mayo Clinic were invited to participate for a \$3 incentive. Quotas for age groups and gender were established to obtain a broader sample. Twenty-nine subjects participated in the BCM condition; 20 subjects participated in the attribute rating scales condition.

Procedure. Shoppers agreeing to participate in the study were randomly assigned to one of the procedure conditions and interviewed one-on-one by a trained interviewer. Subjects were told that they were participating in a study of what consumers think about different healthcare organizations and that they had been chosen to answer questions about the Mayo Clinic. Respondents were encouraged to express their own opinions, whether positive or negative, and were also told that the researchers were not employees of the Mayo Clinic.

Subjects in the *BCM condition* constructed a brand concept map using the same procedure described in Study 1. However, the set of brand associations was modified in several ways. First, we included several foils, consisting of positive statements not usually associated with the Mayo Clinic, such as “has well-regarded drug and alcohol rehab services” and “has many

convenient locations.” These were included to ascertain whether the elicitation procedure, which allows respondents to make selections from a prespecified set of brand associations, would bias consumers to include more positive brand associations in their maps than necessary to reflect their view of the brand. Second, we included more negative brand associations, such as “big and impersonal” and “only for the rich and famous,” to encourage consumers to select negative associations during the elicitation stage if they had negative perceptions of the brand.

Subjects in the *attribute rating scales condition* were asked to complete a survey about the Mayo Clinic. The survey contained 23 questions about the Mayo Clinic, such as “Do you agree or disagree that the Mayo Clinic has excellent doctors?” and “Do you agree or disagree that the Mayo Clinic treats people from around the world?” These questions covered all 23 brand associations contained on the laminated cards used in the BCM procedure. Respondents were asked to agree or disagree with each statement on a 1 (strongly disagree) to 7 (strongly agree) scale. After completing these ratings, participants were asked to indicate their overall feelings about the Mayo Clinic (using the 1–10 scale described earlier) and to answer the same demographic and background questions used before.

Results

The analysis proceeded as follows. First, data from the BCM condition were analyzed, using the same coding and aggregation procedures described in Study 1, to produce a consensus brand map of the Mayo Clinic brand. Second, features of this consensus brand map were compared with rating scale data obtained from the Mayo Clinic survey to assess convergent validity. Although BCM is intended to provide a unique hierarchical view of a brand, quite apart from standard attribute rating scales, there should also be convergence across techniques on some basic parameters. For example, the core brand associations identified by the BCM procedure should be those associations most highly

rated in a survey mode. If this were not the case, one might suspect that the BCM procedure is eliciting a form of thinking or reasoning about the brand that diverges from an evaluative mode captured by survey research. While this might be acceptable, it is clearly different from the notion of brand concept mapping that we have presented thus far.

To assess convergent validity, we first made several comparisons across the entire set of brand associations. The most simple of these involved correlating the frequency of mention for each brand association in the BCM condition with the corresponding mean scale rating provided by subjects in the survey condition. The resulting correlation of .844 ($p < .01$, $N = 23$) indicated that the associations selected by subjects in the BCM condition for inclusion on their maps tended to be the same ones rated highly by survey participants. Table 4, which provides data for the core brand associations, shows that the core brand associations identified by the BCM procedure were also highly evaluated on rating scales, with the remaining brand associations receiving mean ratings from 2.85 to 5.55.

Additional correlations between frequencies and rating scales were computed to examine the validity of other aspects of the BCM methodology. To assess how valid the placements of brand associations on the brand maps were, shown as direct connections to the brand (level 1) or connected to other associations (levels 2, 3, 4), a second frequency measure was developed from the BCM data. Each time a brand association was included in a map, it was weighted by the level at which it was included in the map, with higher weights given to those associations more closely linked to the brand. For example, an association directly linked to the brand (level 1) was given a weight of 4, whereas the same association was given a weight of 3 if it was linked directly below another association (level 2) or a weight of 2 or 1 if it was linked even lower in the hierarchy on a respondent’s map. This procedure resulted in a weighted frequency

Table 4
Study 2: Comparison of Brand Concept Map and Survey Data

Core brand associations	BCM data	Survey data	
	Frequency of mention	Mean scale rating	Correlation: scale rating and brand evaluation
Has advanced medical research*	25	6.40	.508**
Has excellent doctors*	21	6.10	.642**
Known worldwide*	19	6.20	.623**
Leader in treating serious illnesses	19	6.10	.624**
Provides top-notch health care*	18	6.20	.372
Has the latest medical treatments*	17	6.35	.473**
Treats famous people from around the world	17	6.45	.338
Can figure out what's wrong when other doctors can't	15	5.50	.170

Note: * First-order brand association, ** $p < .05$

for each brand association, which was then correlated with the mean scale ratings, producing a correlation of .837 ($p < .01, N = 23$). Thus it appears that the spatial placement of the brand associations on the map also converges nicely with the overall evaluative ratings obtained from the survey sample.

One final correlation was computed to assess the validity of the lines (single, double, triple) chosen to connect associations in the brand map. Each time a brand association was included in a map, it was weighted by the number of lines connecting it to the brand or to the association directly above it. For example, an association linked with a triple line was given a weight of 3, whereas the same association was given a weight of 2 for links using a double line or a weight of 1 for a single line. This procedure resulted in a weighted frequency for each brand association, which was then correlated with the mean scale ratings as before, producing a correlation of .845 ($p < .01, N = 23$). Thus it appears that the selection of connecting lines, which was meant to denote the strength of the association, also converges nicely with the overall

evaluative ratings, which are also a function of belief strength.

One final analysis was conducted with the rating scale data to validate the BCM procedure for identifying first-order associations, pictured as direct links to the brand on the Mayo Clinic map. These associations are defined as the most closely connected to the Mayo Clinic brand, which should also mean that they are most crucial for driving the overall evaluation of the brand. The rating scale data provided a validation check on our selection of first-order associations. We examined the correlations between the overall evaluation given to the Mayo Clinic (on the 1–10 scale) and the rating scale evaluation given to each core brand association. The results, shown in Table 4, show that five of the core brand associations are significantly correlated to overall evaluations of the Mayo Clinic. Of these, four were identified as first-order associations using the BCM procedure. The only exception is “provides top-notch health care,” which was identified as a first-order association but is not significantly related to the overall brand evaluation in the rating scale data.

Discussion

The results provide evidence of convergent validity for BCM. Although BCM and attribute rating scale approaches are quite different in orientation, it was surprising how closely they agreed on some basic aspects of the way consumers view the Mayo Clinic brand. Comparisons between these techniques provided validation for the elicitation and mapping stages (placement of brand associations at different levels and connected with different types of lines) as well as the results of the aggregation procedure (identification of core brand associations and first-order brand associations).

General Discussion

Despite their importance for understanding how consumers view brands, methods for measuring brand association networks are still in their in-

fancy. We have presented a new methodology called Brand Concept Maps (BCM) that elicits brand association networks (brand maps) from consumers and aggregates individual maps into a consensus map for the brand. Results from two studies illustrate the usefulness of the BCM methodology for understanding brand perceptions and provide evidence regarding its reliability and validity.

In this section, we evaluate BCM's contributions to brand measurement and brand management; we also discuss directions for future research and further development of the BCM methodology.

Contributions to brand measurement

The most popular conceptualization of brand equity views brands as consisting of an interrelated network of brand associations (Keller 1993). BCM provides a measurement technology to uncover brand association networks, identifying the brand associations and linkages that represent consumer perceptions of the brand. Consensus brand maps provide a picture of which associations define the core identity of the brand, which associations are directly linked to the brand, which associations are linked to each other, and how strong these connections are in the minds of consumers.

BCM thus offers a significant addition to the toolbox of branding researchers. As discussed earlier, a handful of techniques already exists to produce mappings that identify the most important brand constructs and some of their interrelationships. In contrast to these methods, which involve the use of extensive qualitative methods, BCM provides a more structured technique that is advantageous in several ways.

First, because the elicitation procedure is a standardized one, respondents are able to easily and quickly convey their perceptions of a brand without extended in-depth interviews and highly trained personnel. Although selection of the brand associations used in the procedure takes careful consideration, the elicitation

process is one that consumers can complete in 15 to 20 minutes. In contrast, a qualitative technique such as ZMET (Zaltman and Coulter 1995) requires several hours of preinterview preparation for respondents followed by several hours of in-depth interviews with specially trained staff. The ease of administering BCM makes it suitable for different data-collection venues, such as mall intercepts and focus groups, and enables collection of much larger and much broader samples.

Second, because the elicitation procedure uses a standardized set of brand associations, the aggregation of individual maps to obtain a consensus brand map is less time-consuming and less subjective. The laborious process of content coding, transcription, and summarizing is eliminated and replaced with more straightforward aggregation analyses. Because the set of brand associations is provided, there is also less subjectivity in interpreting consumers' real feelings about a brand. These advantages allow researchers to analyze brand maps in different ways, such as developing consensus brand maps for different market segments.

Combining BCM with more unstructured techniques could provide even more options for research practitioners. In our studies, the set of brand associations used for the elicitation procedure was developed using Mayo Clinic's prior brand research, which included various types of qualitative research. In this way, firms can utilize existing brand research and research methods yet also benefit from the BCM approach in developing brand maps. The same approach could be used for combining unstructured techniques, such as ZMET, with a structured technique such as BCM. For example, the elicitation stage of ZMET, with its multiple methods for uncovering brand associations, could be used for developing a set of brand associations as input into the BCM procedure, which could provide a less laborious and less time-consuming way of developing a consensus brand map. Likewise, data from the elicitation and mapping stages of BCM could be used as input

into analytical techniques such as network analysis, which could provide a different approach for aggregating individual brand maps into a consensus brand map.³

Finally, we would note that the BCM methodology is unique in its being a validated measurement technique, subjected to a number of traditional reliability and validity tests. Similar testing for alternative methods has yet to be reported. Perhaps some of the approaches we have utilized could be a template for reliability and validity testing as current methods continue to be refined.

Contributions to brand management

Brand maps provide a picture of how consumers think about a brand. Consensus maps produced by our methodology allow managers to see which associations define a brand's core identity by looking at first-order associations. These are the brand associations that must be maintained to sustain the brand's identity or the brand associations that must be modified to change the brand's identity. Although consumers may associate many things with a brand, it is the core brand associations that drive the brand's identity and produce the brand equity that can be leveraged to other areas. These core brand associations need to be the centerpiece of strategic brand management efforts to build, restage, and leverage brands.

Our consensus brand maps also allow managers to see what other types of brand associations may be influencing the core brand associations. By showing the interconnections among brand associations, BCM provides a way of diagnosing why consumers have certain beliefs about a brand and what beliefs may need to be changed to affect the core brand associations. For example, consider the brand map for Mayo Clinic patients (see Figure 3). If Mayo Clinic communications to patients strengthen the belief that "doctors work as a team," this change could enhance the important core brand association "best doctors in the world" to which it is strongly connected.

Finally, we would note that these brand management issues appear to be much more accessible to a managerial audience when presented in a visual format such as a consensus brand map. The ability to visualize important brand associations, how they are connected, and how changes in one association might impact other associations and the brand as a whole is an important feature for communicating aspects of brand identity to marketing managers. Although many organizations have documents that specify what the brand stands for, we have found that it is easier for managers to work with brand concept maps. For example, implications of various initiatives (e.g., introducing a brand extension) can be more readily discussed by visualizing which brand associations and clusters of associations might be affected.

Future Research Directions

Several issues would be useful to address in future research to refine the BCM methodology and better determine its usefulness for branding research. First, it would be useful to evaluate BCM's ability to produce brand maps for brands with different types of associative networks. The Mayo Clinic has brand associations that tend to be attribute-related (e.g., "best doctors in the world"), whereas other brands may have more product-related or experience-related associations. For example, a brand such as Nike or McDonald's, with a portfolio of products associated with it, might yield more product-related associations, such as shoes (Nike) or Happy Meals (McDonald's). Exactly how brand concept maps for these types of brands might evolve is an interesting question. It may be that product associations will form the direct links to the brand, with attribute associations connected underneath, or attribute associations may continue to be directly linked to the brand, with product associations connected underneath. Some of our work in progress with brands such as Nike suggests that brand concept maps often include product- or usage-related associations, with attribute asso-

ciations linked at the same level or lower in the hierarchy.

Second, it would be useful to incorporate procedures into the BCM methodology to assess whether relationships between associations are causal, correlational, or neither. While we might be able to reason about the nature of the relationships shown in the consensus brand maps, we have not fully developed a technique for doing so on an objective basis. For example, it seems clear that the belief that the Mayo Clinic “treats famous people around the world” may lead to (cause) the belief that the Mayo Clinic is “known worldwide.” However, being a “leader in cancer research” could be an instance of being a “leader in medical research,” or one of these associations could be driving (causing) the other. Perhaps procedures similar to those used in understanding causal reasoning chains (see Sirsi, Ward, and Reingen 1996) could be incorporated into the mapping stage of BCM to provide more information about the nature of brand association interrelationships.

Finally, it would be useful to develop procedures for aggregating data from individual brand maps to reveal segments of consumers who have very different views of a brand. In our first study, we were able to uncover consensus brand maps for different market segments that we defined a priori—patients (users) versus nonpatients (non-

users), “very familiar” versus “somewhat familiar” consumers, and consumers who view their relationship with the brand as a best friend versus casual friend versus casual acquaintance. Although these segmentation schemes revealed interesting differences, a procedure that would reveal a segmentation scheme based on maximum differences between brand association structures would be particularly useful for branding practitioners. The ability to segment a market on the basis of how consumers view the brand, rather than on demographics or usage, would be a valuable impetus to implementing more of a branding orientation in marketing decision making.

Although work in these areas remains to be done, we believe that the BCM methodology holds promise and is worthy of further research to better understand its uses and limitations. We look forward to meeting these challenges. ■

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Notes

1. Other brand associations that were noted by respondents on blank laminated cards were also coded. Analysis of these items revealed that none appeared in significant number across individual respondents, and they were therefore excluded from further analyses and consensus maps.
2. Relationship groups (best friend, casual friend, and casual acquaintance) were not solely defined by patient

status (patient, nonpatient) or familiarity (very familiar, somewhat familiar, not very familiar). Respondents in the “very familiar” group, for example, fell into all three relationship groups.

3. However, important differences do exist in the nature of the associative networks uncovered by BCM and by network analysis. For example, most network analyses assume that connections are symmetric in nature; BCM explicitly models hierarchical connections that are asymmetric in nature (subordinate and superordinate connections).

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