

Review Article

Exploring Symbolic Meaning through Sentence Completion: A Novel Approach for Evaluation

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A B S T R A C T

The image and ideas that come to mind while thinking about a product are referred to as its symbolic meaning. Humans can use objects as symbols to convey meaning to others and to convey their own unique personalities. Our perceptions of and evaluations of products are greatly influenced by the meanings we give them. In this essay, we look into the evaluation of symbolic meaning. Symbolic meaning is difficult to develop because it is difficult to predict how other people will respond and because the designer and users may have different interpretations of a product. The ethereal character of the event makes it difficult to assess symbolic meaning. To assess designs and get user feedback on how they understand symbolic meanings, useful methodologies are required. To find the symbolic meanings that consumers associate with a product, we employed a sentence completion technique. We report early testing of the method using two case studies. The findings demonstrate that sentence completion can assist designers in better comprehending how people perceive their goods and how symbolic meanings might be honed.

Keywords: symbolic, completion, comprehending, Approach, Production

Introduction

Products have long been acknowledged in design as significant signifiers (Krippendorff & Butter, 1984). Products frequently serve as symbols for people, providing personal significance and revealing the owner's personality to others in addition to serving utilitarian purposes (Crilly, Moultrie, & Clarkson, 2004). An expensive car, for instance, may represent success; the owner feels good and important while driving it, other people would assume that the individual is successful in their line of work. The symbolic meanings of products have attracted a lot of attention in market research, empirical studies have demonstrated that under some conditions people do consider these meanings when determining overall product preferences and attitudes (Allen, 2006). For instance, when asked to choose between various telephone answering machines

in Creusen and Schoormans' (2005) extensive qualitative research of 142 users, nearly half of the sample cited symbolic meaning — largely as connections related to appearance — as a factor for product choice.

According to Allen (2002), symbolic meaning is concerned with how a product is perceived, it includes perceptions about the types of people who use it as well as abstract ideas and associations with the product. Due to the associative nature of human thought, every item can have practically any meaning attached to it. However, the physical properties of the object and the cultural values attached to it appear to have a decisive role (Csikszentmihalyi & Rochberg-Halton, 1981, p. 87). For instance, in Csikszentmihalyi and Rochberg-Halton's examination of household items, TVs and stereos had symbolic meanings that were frequently tied to the individual's personality, while photos were

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particularly good at storing memories and sculptures at embodying associations.

In this essay, we look into the evaluation of symbolic meaning. Designing for symbolic significance can be difficult because it can be difficult to predict how other people will react and because consumers and designers may have diverse interpretations of a product. A designer will always have assumptions about users, their actions, how they will utilise the product. To learn how consumers perceive their products and give them symbolic significance, designers need user feedback. It is difficult to assess symbolic meaning because of its ethereal character. In reality, conducting interviews takes a lot of time, only a few users can take part. Users often do not discuss status or prestige issues in self-reports due to social desirability considerations (Richins, 1994).

Practical methods are required for assessing designs and receiving feedback on how users ascribe symbolic meanings to them. A pricey car may have social standing or prestige value and may make other people like its owner, but these are just two possible benefits. In conclusion, it is difficult to define and quantify symbolic significance. The term "meaning" has been used by various researchers to refer to the phenomenon, along with terms like "personal meaning" (Cupchik & Hilscher, 2008), "symbolic meaning" (Desmet & Hekkert, 2007), "product meaning" (Allen, 2002, 2006), "linking value" (Cova, 1997), "symbolic qualities associated with products" (Crilly, Good, Matravers, & Clarkson, 2008). The concept of symbolic meaning is not static. We must comprehend the components that contribute to symbolic meaning and how these factors can impact user experience in order to assess it from the perspective of the users. In order to make the aspects of symbolic meaning to be judged clearer, this paper surveys the literature. The empirical section of the study discusses a method for assessing symbolic meaning through sentence completion and how it was put to the test in two case studies.

Symbolic Meaning as a Source of User Experience

Concepts connected to symbolic meaning include user experience. The idea of user experience is covered in this section along with how it relates to symbolic meaning.

Intangible Nature of User Experience

The user's views and reactions to their encounter with a system or product are referred to as their user experience (ISO 9241-110, 2010). As the idea of user experience has developed, it now incorporates experiential factors like feelings, emotions, meanings in user-product interactions. User experience, on the other hand, is a nebulous and multifaceted concept with little consensus on its complete nature and extent (Law, Roto, Hassenzahi, Vermeerem, & Kort, 2009).

User experience is a subjective, beneficial, all-encompassing, spatio-temporal phenomena, according to McCarthy and Wright (2004). The qualities of the intended system, the context in which the interaction takes place, the user's internal state all have an impact on user experience, according to Hassenzahl and Tractinsky's (2006) approach. They view the user experience as comprehensive, individualised, contextual, emotive. According to Russo and Hekkert (2007) and Russo, Boess, Hekkert (2011), the user experience develops through the interaction between the user and the product, rather than being a result of a product's features alone.

User experience is an abstract concept that clearly encompasses more than just the functional and instrumental components of a product.

Symbolic Meaning as a Dimension of User Experience

Despite being illusive and open to individual interpretation, a product's symbolic meanings and associations appear to play a significant role in how its users perceive it. There is consensus among scholars that symbolic meaning is a component of user experience. Desmet and Heckert (2007), for instance, distinguish between three levels of product experience: aesthetic enjoyment, meaning attribution, emotional response. Although they do not provide a precise description, they claim that the attribution of meaning is a cognitive process that involves associations, memory recall, interpretation. According to them, meaning is connected to the symbolic or personal significance of items or the potential to bestow upon them a personality or other expressive qualities. They cite a Chinese teacup as an example, which one of the authors is sentimentally connected to since it symbolises his trip to China. Similar to this, users' experiences are seen by Vyas and van der Veer (2006a) as the meanings or interpretations they create while interacting with a product.

Although Hassenzahl (2003) describes qualities that are closely comparable, he does not specifically discuss symbolic meaning as a part of user experience. He divides the hedonic part of user experience into three categories: evocation (self-maintenance, memories), identification (self-expression, engagement with relevant persons), stimulation (personal growth, an increase in knowledge and abilities). Identification is distinguished as a component of user experience by Mahlke and Thüring (2007). As will be explained later, symbolic meanings might be regarded as including identification and other hedonistic elements.

Assessing Meaningful Experience

Factors of the Symbolic Meaning to Be Evaluated The concept of symbolic meaning is not static. We must comprehend its components and how they may impact the

user experience in order to assess it from the perspective of the user.

Symbolic meaning is frequently understood in industrial design literature to be connected to a product's shape, appearance, application. For instance, in their descriptions of the development of product semantics, Krippendorff and Butter (1984) and later Krippendorff (2006) define the field as "the study of the symbolic qualities of man-made forms in the context of their use and the application of this knowledge to industrial design" (p. 4). They connect product semantics to an interest in the cultural histories, symbolic purposes, cognitive implications of form.

An overview of research that take into account the connections between a product's formal attributes and symbolic significance is given by Van Rompay (2008). He uses the example of how people typically see rounded objects as being secure or emotional. Van Rompay's conclusion is that interactions between an individual and their environment produce meaning rather than being a fixed characteristic of the world or the mind. One of his investigations demonstrates that forms across civilizations denote various symbolic meanings. For instance, in the Netherlands but not in Brazil, greater containment (container form) degrees led to higher evaluations on secure. The social worth of items and symbolic linkages are other topics covered by Crilly et al. (2004). According to Mugge (2011), people use a product's appearance to give it personality, which acts as a clue when judging it.

According to Desmet and Hekkert (2007), meaning refers to any non-physical human-product connection that is connected to daydreaming, recalling, or anticipating use. When interpreting objects and determining their symbolic or personal meaning, people employ associations, memory recall, interpretation. Luxury and attachment are cited by Desmet and Hekkert as instances of meaning. The symbolic worth of a comfortable lifestyle connected with certain consumer goods is represented by the luxury experience. (Mugge, Schoormans, & Schifferstein, 2008; Schifferstein & Zwartkruis-Pelgrim, 2008) Products that have a significant and lasting meaning for users are a good representation of the feeling of attachment.

Consumer research has long recognised the importance of product meaning, literature has been written about the components of symbolic meaning. An excellent survey of the relevant literature is given by Allen (2002, 2006). Ogden and Richards described product meaning as the connection between the mind, the item, the outside world as early as 1923. Allen (2006) claims that while there have been many explanations for the meaning of products, they are typically viewed as subjective, infused with affect, typically either utilitarian or symbolic. Our focus is on symbolic significance

that is reflected by intangible qualities. Allen claims that people tend to draw similar conclusions about a product in groups, indicating that culturally shared symbolism is present. Cultural principles, which can be norms, values, or social categories, shape symbols.

Allen (2002) defines product meaning as the idea of the product, taking into account both perceptions about the kind of people who use the product as well as abstract ideas and associations with it. According to psychological and sociological literature, people are drawn to object symbolism primarily in order to express, uphold, or improve their self-concept, or sense of identity and ideal self. Examples of using symbolic meaning to make up for poor self-esteem and inexperience in a particular social function are provided in the literature (Allen, 2002).

After reviewing the consumer research literature, Zimmerman (2009) comes to the conclusion that people use products as extensions of themselves and that creating a coherent life story—an integration of various stories that connect one's past experiences, present experiences, future aspirations—is a crucial component of constructing one's identity. According to a review of the literature by Mugge et al. (2008), people tend to get more attached to items when they utilise them to express and uphold a distinctive sense of self. Allen (2002, 2006) demonstrates through his survey studies that, in addition to identification, people also make certain decisions about which products to purchase based on how well their values are reflected in those choices.

Cova (1997) uses an ethnosociological lens to examine how people behave when it comes to consumption. In ethnosociology, postmodernity is seen to be characterised by a new tribalism. Cova contends that modern people seek goods and services more for their linking value than for their use value in order to sate their yearning for community. When a product provides a site, an emblem, the ability to integrate or be recognised, other features that allow communion, linking value is created. Cova claims that "the postmodern individual can build an identity for themselves with cultural symbols and references (plays, exhibitions, films, books), humanitarian references (the French Doctors, Bosnia, Somalia), but also sporting references (the complete outfit of the OM supporter)", in fact, all possible references" (p. 305).

One type of meaning that can be interpreted is linking value. It refers to features of a product that give users a sense of community. In the literature on consumer research, the same concept is offered. For instance, Belk (1988) believes that identity is significant on a collective level that includes family group, subcultural, national identities in addition to a personal level.

Symbolic meaning can be created through memory retrieval and associations, according to research on industrial design (Desmet & Hekkert, 2007). It also appears to be a factor in determining product attachment (Mugge et al., 2008; Schifferstein & Zwartkruis-Pelgrim, 2008). Consumer behaviour study demonstrates that people value symbolic meaning primarily because they want to preserve, enhance, express their identity and ideal self-image. It has been demonstrated that items take on symbolic meaning when they uphold user ideals (Allen, 2006). According to sociological literature, the aim could also be to create a sense of community (Cova, 1997). The many definitions and areas of study offer contrasting perspectives on the idea of symbolic significance. Symbolic meaning is something ephemeral, individualised, shared across cultures. Desmet and Hekkert (2007)'s presentation of the determinants of symbolic meaning as well as the connection between symbolic meaning and product experience is summarised in Figure 1. Although the elements are similar, they describe the nature of the phenomena.

Assessing Symbolic Meaning in Practice

Gathering feedback from users and evaluating the symbolic meaning of a product is not straightforward in practice because of the intangible nature of the phenomenon.

Interviews Related to Possessions

Eight professional designers and eight graduate students were questioned by Cupchik and Hilscher (2008) to learn why they believed design items to be “meaningfully and emotionally connected” (p. 248). They discovered four components using qualitative analysis and factor analysis. A personalised connection to items might make customers feel as though they are in a social relationship with them. Second, products may be idealised due to their distinction or the fame of their creator. Thirdly, products can offer a platform for significant self-discovery and identity expression. Fourth, metaphors and symbolism can give products significance.

Csikszentmihalyi and Rochberg-Halton (1981) requested participants to list the items in their homes that held special meaning for them and to explain why. After that, meaning categories were ascribed to the reasons. The self, immediate family, experiences were the most often mentioned meaning categories. Then were stated memories, associations, intrinsic features, style, personal values, practical considerations. Links to other people—friends and role models, for example—were also mentioned. In order to get users to communicate about their sentiments, emotions, values, meanings associated to a TV system, Vyas and van der Veer (2006b) used an Explication Interview. However, they simply requested customers to provide extremely generic descriptions of their usage and expectations.

Survey and other methods

In order to determine the public meaning of the items described in the survey, Richins (1994) first utilised a card sorting method to determine the private meanings of the prized goods. Open questions were asked throughout the survey. As an illustration, the respondents were asked to recall a possession they had that was significant to them, describe the item, explain why. Two coders examined the content of the individuals' responses and organised the data in accordance with prior research. When Richins told the other participants that other people had described these belongings as being very significant to them, she asked them to sort cards that featured the items indicated in the surveys.

Some distinctions between public and private meanings are revealed by Richins' (1994) findings. Although it was absent from the content analysis of private meanings, status or prestige were present in public meanings. Instead of mentioning status or prestige, the respondents who evaluated their own personal meanings referred to the item's look or monetary value. According to Richins, respondents withheld meanings associated with rank or prestige because of concern for their social desirability. The distinction between symbolic meaning related to interpersonal connections and symbolic meaning related to personal identity was not made by public meanings, on the other hand. Public meanings frequently lacked the complexity of private meanings.

Using a semantic differentiation method in Kansei engineering, Jindo and Hirasago (1997) requested survey respondents to rate extremely minute deviations in design elements like fonts. The results are centred on specific product characteristics, but they do not show how users interpret symbolic meaning, how they perceive the product's overall image, or how effectively the product supports their sense of identity.

In conclusion, the most common method for determining symbolic meaning is interviewing. Users were typically asked to explain an item that is significant to them in the studies we analysed, but when a product is appraised for design purposes, it may not be unique to the respondent. Understanding symbolic meaning is a challenging subject. Because the interviews described in the literature are so open, it is difficult to analyse them and there are only so many users that can be investigated. In order to pinpoint the many components of symbolic meaning, a more focused approach is required.

Sentence Completion Technique

We used a sentence completion technique, a well-liked projective psychology technique in consumer research, to address the difficulties of judging symbolic meaning

(Hoyer & MacInnis, 2007). The projective approach and questionnaire known as sentence completion involves giving respondents the beginnings of sentences, which they then finish in ways that make sense to them (Soley & Smith, 2008, p. 132). Sentence completion tests' popularity, according to Soley and Smith (2008), can be attributed to their advantages over alternative projective methods. The tests can be used to evaluate motivations or attitudes and are simple to administer, suited to group administration, can be analysed qualitatively or quantitatively. For the goal of product development, sentence completion has already been employed (Kujala & Nurkka, 2009; Nurkka, Kujala, & Kemppainen, 2009).

The method's strength is that respondents express their circumstances using their own words, providing more spontaneous and sincere responses than they would on a conventional questionnaire (Hoyer & MacInnis, 2007). According to Soley and Smith (2008), the method is particularly well adapted to analysing symbolic meaning that may be partially subconscious since it might reveal contradictory attitudes and ideals that are challenging to discover with other types of assessments.

Cases: Evaluating Symbolic Meaning

In two case studies, the usefulness of evaluating symbolic meaning with a sentence completion technique for determining how users interpret the meaning of current products was tested. To capture the symbolic meaning aspects found in the literature, we developed sentence stems (the beginning of sentences). We sought to create sentence stems that were easy to finish and wide enough to prevent responders from responding in accordance with any preconceived notions. As can be seen in Table 1, the stimulus material was initially created for Case 1, the majority of the sentences were subsequently used in Case 2.

Case 1 Polar Electro, a multinational firm that manufactures a range of sports and fitness equipment, was the subject of the first case study. The RS200 heart rate monitor was the subject of the study, which sought to identify potential improvements by evaluating the user experience and symbolic meaning of the product.

Participants

99 RS200 heart rate monitor users who were chosen at random from a customer database and sent an email with a study offer. The online survey's respondents had a week to complete it. A lottery with a Polar product as the reward was promised to those who completed the questionnaire. The questionnaire was filled out by 36 users. They had a 38.7 year old average age, 16 (44%) of them were female.

Questionnaire

The survey had 50 phrase completion tasks and four questions about background information (Appendix 1). The goal of the sentence completion exercises was to get users' general opinions on working out as well as some particular comments regarding the RS200 heart rate monitor. Only 15 of the statements (Table 1) specifically tried to gauge various aspects of symbolic meaning. The first sentence stems were especially frank in their quest to elicit data regarding users and user values. To determine what kinds of experiences people enjoy and value, the sentences relating to users' dreams and best experiences were collected. To get input on how the product promotes consumers' emotional values, words linked to the sentiments the product elicits were used. Most of the remaining phrases examined other symbolic meaning-giving elements, such as associations with the product, its aesthetics, its support for identity or status. Asking participants to identify the traits of the typical product user is a frequent method used in market research to assess a product's image (Allen, Gupta, & Monnier, 2008).

To elicit views about the types of people utilising the product, this strategy was used in a single statement (Allen, 2006). The comments show how consumers believe the thing conveys prestige value and the personality of the owner. While status may not be mentioned in self-reports, Richins (1994) demonstrates that respondents find it simpler to discuss status when they are thinking of others.

The responders were told there were no wrong responses and to rapidly complete the sentences using the first thought that entered their minds.

Table 1

The sentence stem	Factors of symbolic meaning aimed to be measured
In relation to sports, I dream... The best of my training experiences was...The feeling the RS200 arouses... When I use the RS200, I feel myself...	User values (hedonic and emotional values) (Allen, 2002, 2006). User values (hedonic and emotional values) (Allen, 2002, 2006). User values (hedonic and emotional values) (Allen, 2002, 2006). User values (hedonic and emotional values) (Allen, 2002, 2006), support for identity or status (Boztepe, 2007).
The RS200 brings to my mind...To me the RS200 means... Compared to other products, the RS200 is...The appearance of the RS200 is... The style of the RS200...	Associations with the product (Allen, 2002).Associations with the product (Allen, 2002).The image of the product (Allen, 2002). Associations with the product's appearance (Rompay, 2008).The image of the product (Allen, 2002).

The RS200 fits best... The RS200 does not fit... The image that the RS200 gives of its user...	Associations with the product (Allen, 2002). Associations with the product (Allen, 2002). Support for identity or status (Boztepe, 2007).
The typical owner of an RS200 is...	Beliefs about the kinds of people using the product (Allen, 2002; Allen et al. (2008).
The RS200 makes me...	Support for identity or status (Boztepe, 2007).
When I use the RS200, other people think...	Support for identity or status (Boztepe, 2007), support for user values e.g. relatedness (Allen, 2002, 2006).

In order to compare responses from many participants and exhibit all of one respondent's answers, the participant's responses were first organised into a table. Although the respondents' language differed, their meanings were generally extremely similar. The percentage of users reporting the same meaning was then calculated from the frequency of comparable responses. The precise wordings of the user comments were used in the findings to keep the material in line with what was originally said by the users. The category's name was taken from the most common response. Both words were used in the category title if there was a tiny difference in language, such as between "active" and "active exerciser."

According to Table 2, most respondents believed that a typical RS200 user would be an enthusiastic, energetic exerciser. Many more replies were related to this view, one or both of these words appear in 55% of the responses. According to one response, the typical user is intrigued by technology. This most likely implied that the product is heavily focused on technology, which can be a bad association for some users. One female respondent said that men make up the majority of users, she afterwards characterised the product as being unfeminine.

Table 2. Users' view of the characteristics of the typical user of the RS200 heart rate monitor

Response	Number of responses
Active/Active exerciser/Active runner	10
Exerciser/Enthusiastic	4
Sporty	2
Runner	2
30 years/25-30 years	2
Amateur/Ordinary	2
Like me	1
Satisfied with the product	1
Relaxed exerciser and high-spirited	1
Novice runner	1
Interested in technology	1
Man	1

Middle aged, looking for self and experiences	1
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Responses were less uniform when the statement "To me, the RS200 means..." was included. The participants primarily discussed utilitarian connotations. They stated (11 replies) that the product means better, healthier, or more organised training. Some of the feedback was extremely favourable, with customers praising the product's high level of personalization (Cupchik & Hilscher, 2008). The product was viewed as a collaborator, motivator, coach, supporter despite merely being a measurement equipment (5 replies). The product was merely a tool in the eyes of some users (8 answers). When asked "The RS200 brings to mind..." and "The RS200 does not fit...", customers responded with both good and negative qualities associated with the product.

Only two respondents said the product was simple to use or understand. It was tough to utilise, four respondents said in a variety of ways. It may not have felt feminine because of the product's unsuitability for small individuals, as one woman pointed out. The meanings of the answers to these three questions are summarised in Figure 1.

Along with these two illustrative figures, we also got input on the product's design, quality, usability, as well as user goals, values, emotions, dreams.



Figure 1. The meaning of RS200 heart rate monitor to users

Case 2

In the second case study, it was investigated if sentence completion revealed distinctions between the perceptions of symbolic meaning by two different user groups. It is expected that a product's positive symbolic significance will cause consumers to have an emotional connection to it. This implies that a decent evaluation approach should be able to distinguish between two user groups with varying levels of attachment to a product. In this study, plastic dish collectors and a control group of non-collectors were compared.

Participants

The study had two groups of five women each. The first five women all owned pieces from the "Katrilli" tableware set, which was created by Tauno Tarna and manufactured by Sarvis, Finland's first plastics firm, between 1969 and 1985. As they gathered dishes that other people had given away or sold at flea markets, the collectors appeared to have a deep emotional connection to the old plastic dishes. On their blogs, the collectors displayed their collections and discussed how much they loved the products. The ages of the collectors, all of whom were mothers, ranged from 29 to 43 (M = 34.4). The control group consisted of a second group of five females. They did not collect the plastic dishes, but they did have children and were the same ages as the collectors.

Procedure and questionnaire

We met the participants at their residences or workplaces. Prior to the interview, they were required to complete a sentence completion questionnaire. On the phone, a collector was questioned. 14 sentences made up the questionnaire (Appendix 2). Twelve of the sentences were carried over from the first case study but were rephrased to better suit the nature of the product. One overlapping feeling question and two sports-related questions were omitted. Regarding the plastic used and how the dishes looked, two additional questions were included. For both groups of respondents, exactly half of the sentences were identical. The words for the control group were slightly changed to refer to plastic dishes in general, while the other half were slightly changed so the collectors would refer to their personal plastic dishes.

Results

134 sentences were finished by the respondents. The respondents left six sentences (4%) blank and wrote "I don't know" in five other sentences. Four collectors had trouble responding to the statements "Plastic dishes do not fit..." (3 missing), "Plastic dishes make me..." (2 missing), "The figure that plastic dishes give their owner..." (2 missing), while the control group only left three distinct sentences blank.

36% of the 129 sentences that were finished had only one word as a response. When one of the collectors was asked how plastic plates looked, they said, "colourful." A member of the control group remarked, "Plastic dishes look... ordinary," in response. The majority of the time, the respondents used multiple words to describe their actions. For instance, a collector responded, "The figure that plastic dishes give their owner... happy, ecological, playful," or a member of the control group, "The figure that plastic dishes give their owner... want to get easy, careless, easy."

All of the important terms from all of the responses were converted to tag clouds via the www.wordle.net service in order to compare the two groups' responses and their frequency distributions Figures 2. Only adverbs and conjunctions like "and" were not included in the tag clouds.

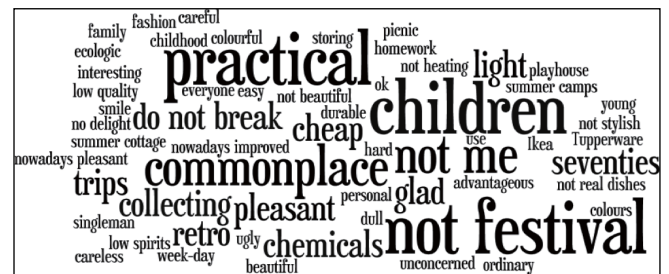


Figure 2.A tag cloud of the control group's replies

There are some parallels between the two user groups' comments. For instance, both people thought plastic dishes were cheerful and colourful. The distinctions were more obvious, proving that sentence completion can distinguish between user groups. The control group's strongest association was with practicality and suitability for children's use, whereas the collectors' strongest association was with their own childhood. The control group thought the plastic dishes were ordinary and inexpensive, while the collectors thought they were attractive and multifaceted.

The findings offered some design ideas. For instance, the control group had negative connotations with the chemicals and plastic material, but they valued the usefulness and vibrancy of plastic dishes. This gave rise to the notion that plastic and glass or porcelain might be blended. To prevent it from touching the food, a glass or porcelain dish could have a plastic cover.

Conclusions

In order to assess symbolic significance, a sentence completion technique that has been employed in psychology and marketing was put to use in this study. In two case studies, sentence completion was evaluated. The employed stimulus phrases were created to elicit data regarding the various elements that make up symbolic meaning that were noted in the literature review. Furthermore, a specific effort was made to expose the status and prestige issues that are typically kept under wraps for reasons of societal acceptability.

The two case studies offer circumstantial evidence that the sentence completion technique can reveal important details about how consumers interpret the symbolic significance of products. Although specific users may have personal meanings that are not generally shared, the experience of evaluating product meaning reveals that users appear to have a consistent and shared view of meaning. Because users vary, some may have considered simplicity of use in Case 1 while others may have had entirely different thoughts.

Although the results of the sentence completion technique are qualitative in nature, they can aid designers in understanding how customers view their products and how to improve the symbolic significance of a certain item. By bolstering the positive connotations and improving the elements that elicit negative responses, this input can be applied to design. In the first case study, for instance, users described the heart rate monitor as a coach, motivator, companion, indicating that new approaches to enhancing the heart rate monitor's ability to offer guidance, encouragement, social support may be taken into consideration. A design goal might be to make the display appear more human-oriented because some users perceived it as being difficult to operate and similar to a machine.

One user also thought the item did not feel feminine and did not fit little persons. It is difficult to support both male and female identities with one product, however consumers could be given tools for customising a product to better support their identities, or the business could offer a variety of heart rate models so that customers may choose the one that is most appropriate for them.

The second case study demonstrated how sentence completion can reveal user group distinctions. The collectors of plastic dishes displayed much more positive associations than the control group, demonstrating the link between positive symbolic meanings and positive emotional attachment to the objects. Sentence completion revealed the differences between the two groups' differing viewpoints. The positive opinions of the collectors were

influenced by their early life. The control group recognised the usefulness of the plastic plates but thought they were ordinary, unsuitable for use at festivals, might even contain toxins. If all users lack childhood memories, it is difficult to help them by design. The control group's replies, however, show that the symbolic significance of plastic dishes has negative connotations that should be taken into account while developing new plastic dishes. Additionally, the outcomes might serve as design inspiration. As an illustration, several materials might be blended to maximise their strengths. Lids for dishes made of china or glass could be constructed of useful plastic. Some consumers are concerned about the toxins in plastic, although dish covers are rarely in contact with food directly.

The benefit of the sentence completion technique is that it enables users to formally and in their own words describe their relationships. Although interviews can produce comprehensive and high-quality data, they are time-consuming to conduct and can only involve a small number of participants. A representative group of users can be quickly and readily contacted online using the sentence completion technique. Since the responses are provided in a written and organised format, sentence completion data analysis is simpler than that of interview data. The results are qualitative, though, so analysing them is more difficult than it would be when utilising quantitative data.

Tag clouds can be used to tally the frequencies of various replies and visualise the outcomes, as Case 2 demonstrates. Tag clouds can give the initial fast expression of the results when the number of respondents is high or in industry situations where there are not enough resources available for detailed research. Respondents may use a variety of alternative wordings and synonyms that need to be examined. There aren't many simple approaches available right now for analysing qualitative data. Automatic semantic analysis may one day make it possible to analyse vast amounts of data.

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