# Meaning of artefacts: interpretations can differ between designers and consumers

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Previous research has suggested three primary categories of meaning which designers should consider during their design processes, i.e. function, ritual and myth, which cover a spectrum from the purely instrumental to the purely symbolic. The research hypothesis of the current study was that the previously identified three primary categories of meaning would be commonly encountered in practice, and that statistically significant differences would occur between designers and consumers. A semi-structured questionnaire was deployed with ten designers and with ten consumers using a set of twenty photographs of designed artefacts. The results suggested that all three categories of meaning could occur individually or could be co-present to some degree. The results further suggested that statistically significant differences occurred between the group of designers and the group of consumers in the indicated category of meaning and in the adjectives used to describe the artefacts. The findings suggest that some meaning divergences may be occurring between designers and consumers, and would appear to highlight the need for carefully executed ethnographic and user testing activities.

Keywords: Function, ritual, myth, meaning, human-centred design

## Introduction

There has in recent year been much debate in professional circles regarding the meaning of designed artefacts. Numerous indicators point to an excess of products and to a trend of increased sophistication of selection on the part of the consumer (Wallman, 2015). Consumers are claimed to increasingly favour purchases which are rich in emotions (Chapman, 2005 ; Oatley, Keltner & Jenkins, 2006), experiences (Schifferstein & Hekkert 2007 ; Shaw, Dibeehi, & Walden, 2010) and meanings (Dunne, 2008 ; Wendt, 2015).

Regarding meaning, standard dictionaries of the English language suggest that the word "meaning" can express at least three possible concepts: the sense or signification of a word or sentence; the significance, purpose or underlying truth of something; the motive or intention of something. The meanings which consumers associate with commercial products were considered by Friedman and Lessig (1986) who noted that "one can regard consumer behaviour as a continuum ranging from information processing to aesthetics consumption. On the one extreme we can see a logical, methodical information-processor using choice heuristics. At the other extreme we see the consumer aesthetically consuming based upon such feelings as fun, elation, and hedonic pleasure". Fournier (1991) extended the logic by suggesting that consumer objects can be grouped according to the nature of the consumption experience so as to place them along a continuum from the utilitarian to the hedonic. Eight categories of consumer meaning were defined. They were objects of

utility, action, appreciation, transition, childhood, ritual enhancement, personal identity and position or role. Adopting a similar point of view to categorise a large number of commercial projects, Diller, Shedroff and Rhea (2008) suggested fifteen categories of meaning: accomplishment, beauty, creation, community, duty, enlightenment, freedom, harmony, justice, oneness, redemption, security, truth, validation and wonder.

Krippendorff and Butter (2007) suggested four theories of meaning in relation to the artefacts of design: a theory of meaning for artefacts in use, a theory of meaning for artefacts in language, a theory of meaning for artefacts in their life cycle and a theory of meaning for ecologies of artefacts.

The claims of sociologists regarding the constructed nature of meaning and its relativity to a given culture at a given point in time are supported by several studies of the meaning of artefacts. For example, research by Csikszentmihalyi and Rochberg-Halton (1981) has shown that meaning can change as a function of age, gender and other demographic descriptors. Further, studies such as those of Watson (2002) or Wallendorf and Arnould (1988) have shown that the meaning associated with an artefact can change substantially as a function of the cultural context in which the artefact is emerged.

Through examples such as that of the motor vehicle, Pantzar (1997) has suggested a natural cycle for some artefacts of design which begin their existence as luxuries and toys, becoming more central to society as time passes, eventually becoming necessities or commodities. Through examples such as eyewear, Pullin (2009) has instead suggested a natural cycle in the opposite direction for some artefacts of design, which enter society as functional tools and as time passes become objects of identity and personal expression.

An important point in relation to the concept of "meaning" is that studies on semiotics and sign process (Fisch, 1986) have suggested that the 'intended sign content' chosen by a creator may turn out to be different from the 'received sign content' of an end user. Siefkes (2012) specifically suggested that "the meanings that become connected with products don't always have to be the meanings intended by the designers" (p. 9). Whether designer notions of meaning are being received by consumers to a high degree, or, instead divergent from that of consumers to some degree, is a question which can be suggested to merit investigation. Substantial divergences in meaning might be expected to lead to some degree of commercial difficulty at some point in an artefact's life cycle. Further, knowledge of possible divergences might prove useful towards the prioritising of the design processes involved, for example by prioritising ethnographic and validation activities.

## Three Categories of Pre-existing Meaning of Designed Artefacts

Giacomin (2017) has suggested that any commercially active designer would be expected to clarify, decide upon and communicate the following at some point in the design process if meaning is being considered an important characteristic of the artefact:

- the relevant corporate or brand ideology;
- the form of value which the consumer is anticipated to derive from the artefact;
- the meaning which the artefact is anticipated to provide or facilitate for the consumer;
- the adherence between the artefact and some existing function, ritual or myth;
- the opportunity or need to define a new function, ritual or myth due to technological or societal change;
- the focal metaphor of the artefact;
- the physical, informatic and manufacturing specifications of the artefact.

The visual representation which was proposed as a means of capturing the concerns and questions is shown in the framework of 'design for meaning' in Figure 1. For simplicity of use, the diagram was organised with the starting point being the corporate or brand ideology (Hatch & Schultz 2008) and the terminating point being the final product, system or service specifications. The diagram is subdivided into two sections in relation to the fundamental consideration of whether the artefact should adhere to an existing technological or societal stereotype or, instead, whether there is the opportunity or the need to define a new meaning due to technological or societal change.

Giacomin (2017) suggested that for many fast moving consumer goods, home goods, office goods, vehicles, transport systems and elements of the built environment a deviation from an existing function, ritual or myth can be problematic, but that there are a growing number of instances in which a business opportunity can only be achieved by exploiting a new technology or a new cultural code (Holt & Cameron, 2010). Such cases of disruptive innovation (Bower & Christensen, 1995 ; Clayton, 1997) or radical innovation (Dahlin & Behrens 2005 ; Norman & Verganti 2014) are premised on the possibility of defining a new meaning for the potential

consumers. The establishing of such new meanings was expressed by Giacomin (2017) using the term "meaningfication", which was defined as:

*The use of data, design ethnography, real fictions and co-creation for the purpose of designing artefacts based on new meanings which emerge from the interconnection of evolving patterns of technology, experience, personal identity, societal identity, value assignation and consumption. (Giacomin, 2017, p. 22 )*

When a designer identifies an opportunity which interconnects several previously unrelated technological and cultural codes, and articulates one or more product, system or service concepts which address the opportunity, the process can be described as one of "meaningfication".
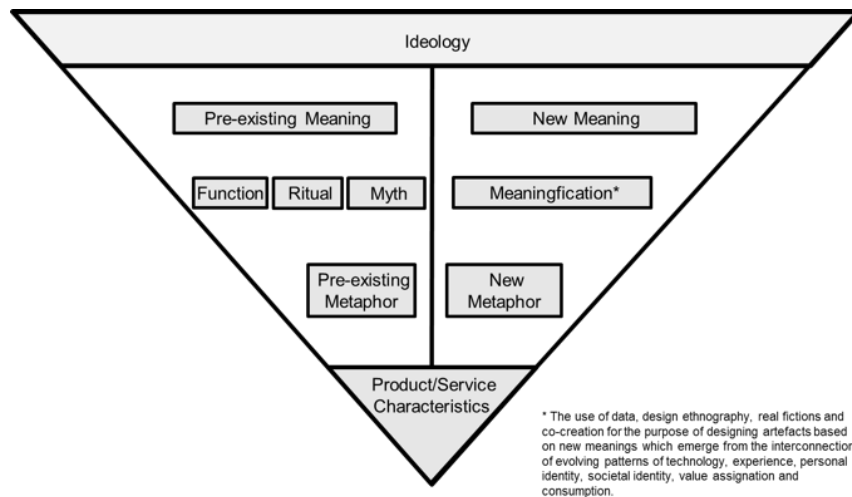


*Figure 1: Framework of design for meaning. source: Giacomin, 2017*

Three primary categories of pre-existing meaning are proposed in the framework of Figure 1 covering a spectrum from the purely instrumental to the purely symbolic. These categories of meaning can occur individually, or in the case of some products, systems or services might be co-present to some degree. Each category of meaning involves dialogue which focuses mainly, but not exclusively, on one specific consideration to optimise. The concept of "design for meaning" suggests that the three categories of pre-existing meaning of function, ritual and myth can provide a bridge between the global meaning of an artefact and the specific metaphor which is deployed by the designer.

The category of "function" is meant to reflect all those situations in which a physical or informatic use is acting as the focus of attention, with less attention being paid to the psychological or sociological considerations. The category of "ritual" is meant to reflect all those situations in which the meaning of the artefact is closely related to action of a symbolic nature. The category of "myth" is meant to reflect all those situations in which the meaning of the artefact is mainly symbolic, thus not necessarily requiring dedicated externally visible activity on the part of the consumer.

The aim of the study presented in this paper was to investigate the potential usefulness of the "design for meaning" framework for distinguishing between meanings when organising the design of artefacts. The objective of the current investigation was to establish if the three previously identified primary categories of meaning are commonly encountered in practice, and to note any statistically significant differences in meaning between a group of designers and a group of consumers. For this purpose, a set of twenty well known commercial artefacts was chosen as the basis for the exploration of associated meanings.

## Methods

### Participants Selection

Review of the ergonomic, psychological and sociological literature suggests that the use of ten participants can often be considered sufficient for purposes of qualitative analysis (VanVoorhis & Morgan, 2007). Given the

exploratory and qualitative nature of the current investigation it was decided to assemble a group of ten designers and a group of ten consumers for a total of twenty individuals.

To be selected each designer had to have more than three years of design experience, preferably in commercial practice. To be selected each consumer had to have no experience in a design related discipline. In order to reduce one well known source of bias, the sampling was performed in such a manner as to ensure equal numbers of male and female participants in each group. Efforts were made to also achieve a relatively similar distribution of the demographic descriptor of age. Across the complete group of twenty individuals the participant age ranged from 22 to 48 years with a mean value of 28.2.

To simplify recruitment and procedures all individuals were staff or students of the university. All were unpaid volunteers. All phases of the recruitment process and of the study itself were performed in compliance with the university's ethics policy and with the terms of the specific ethics approval granted by the university.

## Artefacts selection

Given the exploratory and qualitative nature of the current investigation it was decided to use representative designed artefacts which provided a wide spectrum of characteristics along a continuum from the utilitarian to the hedonic. The selection criteria adopted with respect to the design for meaning framework were the following:

- the artefact is a commercial product;
- the artefact's brand association is expected to be evident;
- the artefact's design metaphor is expected to be simple enough to be understood;
- the artefact does not exhibit significant hidden product characteristics.

Additional selection criteria adopted for the study were the following:

- the artefact is commonly encountered in everyday life;
- the artefact is expected to be familiar in terms of affordances and stereotypes;
- the artefact is not contentious in terms of meaning or association with world affairs.

After shortlisting it was decided to choose the final artefacts from the commercial sectors of durable consumer goods and of fashion, because analysis of the shortlist highlighted that these two commercial sectors offered a wide variety of artefacts which people encounter in everyday life. The twenty final artefacts are shown in Figures 2 and 3.



| Chanel No.5 Fragrance | Dior lipstick | Swarovski Necklace | Ray Ban sunglasses | Burberry bag | Reebok Shoes | Nike Sport Jacket |

*Figure 2: Seven fashion goods used in the study*

*Figure 3: Thirteen durable consumer goods used in the study*

## Working Definitions of Function, Ritual and Myth

Working definitions of the semantics "function", "ritual" and "myth" were required for use in the study so as to minimise variations in response due solely to different, potentially incorrect, interpretations of the semantics on the part of the participants. In order to keep the guidance as simple and intuitive as possible the dictionary definitions referenced by Giacomin (2017) were adopted:

Function:

- the way something works or operates;
- the natural purpose of something or the duty of a person.

Ritual:

- a series of actions or a type of behaviour which is regularly and invariably followed by someone;
- a set of fixed actions and sometimes words performed consistently and regularly, especially as part of a ceremony or collectively.

Myth:

- a traditional story, especially one concerning the early history of a people or explaining a natural or social phenomenon;
- an idealised, exaggerated or fictitious conception of a thing or person;
- a widely held but false belief or idea.

These definitions were provided to the participants in the form of written text which was presented for a fixed period of time during the induction and familiarisation stage of the study. In this manner, it was presumed that each participant was provided equal access to the core definitions of the study and similar time for reflection and understanding.

## Procedure

Each participant (n=20) was received separately in a closed room in the Human Centred Design Laboratory of Brunel University. Upon arrival the participant was provided the background information to the study, including the relevant health&safety and ethics considerations. The participant was next asked to read the written working definitions of "function", "ritual" and "myth" which had been adopted for the study.

The lead researcher next presented each of the twenty artefacts, one-by-one, by means of a large photograph and asked the participant to respond to the following questions:

- *"Is function an obvious meaning which can be associated with this artefact ? Yes? No? Unsure?*
- *If "Yes", can you suggest at least three adjectives which describe the artefact in terms of function?*

- *Is ritual an obvious meaning which can be associated with this artefact ? Yes? No? Unsure?*
- *If "Yes", can you suggest at least three adjectives which describe the artefact in terms of ritual?*
- *Is myth an obvious meaning which can be associated with this artefact ? Yes? No? Unsure?*
- *If "Yes", can you suggest at least three adjectives which describe the artefact in terms of myth?*

For each artefact the question set attempts to first identify the presence or absence of each of the three a-priori defined categories of meaning, then moves on to request adjectives which describe the way the artefact manifests that meaning.

The forced choice format was used for the meaning attribution in order to elicit deeper processing, to minimise satisficing behaviours (Smyth, Dillman, Melani, & Stern, 2006) and to reduce acquiescence (Schuman & Presser 1981). The option of selecting "unsure" was provided in order to avoid the potential bias which can occur when people are forced to choose an answer that may not be completely true for them (Smyth et al., 2006). The collection via an open ended format of three adjectives to describe the artefact was instead inspired by the ethnographic criteria of Hanington and Martin (2012) which aim to extract balanced and unbiased views from people.

To minimise learning and fatigue effects the order of presentation of the working definitions of the categories of meaning on the instruction sheet were randomised for each participant, as was the order of presentation of the twenty artefacts. To further reduce the bias which is caused by artefact order of presentation (Gescheider, 1997) the participants were asked to respond to each artefact based on its own merits, independent of the preceding artefacts. Across the complete group of twenty participants the time required to complete a study session was never greater than 16 minutes for any given individual.

## Data analysis

All written responses were initially recorded on sheets of paper and then later transcribed by the lead researcher into the NVivo software (Bazeley & Jackson, 2013). NVivo supports qualitative, quantitative and mixed methods research by means of a variety of statistical algorithms and logical tools. Using NVivo, counts were performed across the complete data set consisting of all the responses from all participants. The number of times a category of meaning (function, ritual or myth) was cited was totalled for each individual artefact and across the complete dataset of twenty artefacts. The number of times a category of meaning was cited was also totalled for each individual participant and across the complete dataset of twenty participants. Statistical analysis of means and ANOVA were then performed across the subgroups which were being compared.

# Results

Table 1 presents the total number of times a category of meaning occurred across the complete database of twenty artefacts and twenty participants. The numbers provided in Table 1 are the sums obtained by counting how many times the category of meaning was found in the database. Table 1 does not contain an "unsure" column because none of the participants chose that option for any of the artefacts used in the current study.

*Table 1: Number of times a category of meaning was selected across the complete set of twenty artefacts*

|  | *Category of meaning* | | |
|---|---|---|---|
|  | *Function* | *Ritual* | *Myth* |
| Consumers (n=10) | 128 | 112 | 101 |
| Designers (n=10) | 117 | 76 | 81 |
| All Participants (n=20) | 245 | 188 | 182 |
| **All Participants Percentage** | **39.8%** | **30.6%** | **29.6%** |

Table 1 suggests that the category of "function" produced 245 responses which accounted for 39.8% of the total tallied across the complete set of twenty artefacts and twenty participants. Table 1 also suggests that the category of "ritual" produced 188 responses which accounted for 30.6% of the total, while the category

"myth" produced 182 responses for 29.6% of the total. A two-tailed normally distributed ANOVA performed across the dataset (n=20 people) at a 95% confidence level suggested that there were no statistically significant differences between ritual and myth responses, while instead the differences were statistically significant between function and ritual, and between function and myth.

The sum of the responses for the three categories of meaning is 615, which exceeds the value of 400 which is obtained by multiplying the number of artefacts by the number of participants. This confirms that in the current study the participants frequently indicated more than a single category of meaning for a given artefact. In fact, several examples can be identified in the database where a given artefact was considered to possess some amount of each of the three categories of meaning.

Table 1 also suggests that the group of consumers, who were anticipated to have no background in design theory or practice, attributed more meanings than the group of designers. Differences between the two groups were particularly evident in relation to the categories of "ritual" and "myth", suggesting that typical consumers may be considering semiotic and symbolic content which is not immediately apparent or relevant to designers. A two-tailed normally distributed ANOVA performed across the dataset (n=20 people) at a 95% confidence level suggested that statistically significant differences existed between the responses from the consumers and those from the designers for the categories of ritual and myth, but not for the category of function.

Table 2 presents the total number of recorded adjectives for each category of meaning across the complete database of twenty artefacts and twenty participants. Table 2 suggests that the category of "function" produced 1050 adjectives which accounted for 42.5% of the total. Table 2 also suggests that the category of "ritual" produced 688 adjectives which accounted for 27.8% of the total, while the category "myth" produced 732 adjectives for 29.6% of the total. A two-tailed normally distributed ANOVA performed across the dataset (n=20 people) at a 95% confidence level suggested that the differences in the number of adjectives between each of the three categories were statistically significant.

*Table 2: Number of adjectives used for each category of meaning across the complete set of twenty artefacts*

|  | Category of meaning | | |
|---|---|---|---|
|  | *Function* | *Ritual* | *Myth* |
| Consumers (n=10) | 542 | 406 | 402 |
| Designers (n=10) | 508 | 282 | 330 |
| All Participants (n=20) | 1050 | 688 | 732 |
| **All Participants Percentage** | **42.5%** | **27.8%** | **29.6%** |

The sum of the adjectives for the three categories of meaning was 2470, which is more than the value of 1845 which is obtained by multiplying the 615 indicated meanings by the 3 adjectives which were requested for each meaning. This suggests that many participants provided more than three adjectives with respect to each of the categories of meaning which they had indicated.

Figure 4 presents an example which illustrates the frequency and nature of the adjectives which were provided by the participants. Figure 4 contains three representative artefacts which might be expected to span part of the spectrum from the purely instrumental to the purely symbolic, chosen from among the twenty which were used in the study. For each of the three artefacts the adjectives are shown under the artefact image, subdivided by the participant group (designer or consumer) and by the category of meaning (function, ritual or myth).

From the examples of Figure 4 it can be noted that the three primary categories of meaning can occur individually or can be co-present to some degree. Further, it can be noted that there was a propensity for a greater number of meanings and a greater number of adjectives among the group of consumers with respect to the group of designers. Among the examples shown in Figure 4 it can be noted that the picture frame, in particular, appeared to be viewed in mostly instrumental terms by the group of designers while the same artefact was assigned a wide range of instrumental and symbolic meanings by the group of consumers.

## Discussion

The research hypothesis of the current study was that the previously identified three primary categories of meaning would be commonly encountered in practice, and that statistically significant differences would occur between designers and consumers. The results suggest that all three categories of meaning, i.e. function, ritual and myth, do occur in practice, individually or in co-presence. The results further suggest that statistically significant differences occur between groups of designers and groups of consumers in both the indicated categories of meaning and in the adjectives used to describe artefacts. The results would thus appear to support the research hypothesis.

A point of note in relation to the results is the prevalence of functional attributions. For both the group of designers and the group of consumers, functional meanings were the most frequently attributed and functional adjectives were the most statistically prevalent. The results suggest a greater facility, or at least a greater propensity, for instrumental judgements.

Nevertheless, as Krippendorff (2007) and Siefkes (2012) have advocated, the functional meanings are not the only ones which people associate with artefacts. The meaning attributions and the adjectives collected in the current study suggest that the group of consumers, in particular, viewed many of the artefacts in a hedonic manner. Adjectives which were frequently encountered included such examples as "attractive", "desirable", "fun" and "exciting". The current results provide empirical evidence in support of those who advocate "The Semantic Turn", i.e. the paradigm shift from an emphasis on how artefacts should function to what they should mean (Krippendorff, 2007). The current results also provide empirical evidence in support of those who advocate "Human Centred Design", i.e. the design process involving of a series of questions and answers which span the spectrum from the physical nature of people's interaction with the product, system or service to the metaphysical (Giacomin, 2014).

A finding of the current small exploratory study was that some divergences in meaning may be occurring between designers and consumers. For most of the artefacts used in the study there were a greater number of ritual and myth meanings indicated by the group of consumers than by the group of designers. The situation is understandable given the difficulties in imagining all the possible semiotic and hedonic meanings which an artefact might take on for an ethnographically diverse public. Nevertheless, the current results seem to highlight the need for carefully executed ethnographic and user testing activities.

The large number of meaning attributions and the large number of meaning adjectives found in the current study would seem to suggest the potential usefulness of the framework suggested by Giacomin (2017) for distinguishing between meanings when organising the design of artefacts. Further research is therefore underway to extend the existing study to larger random samples of artefacts from selected commercial sectors.
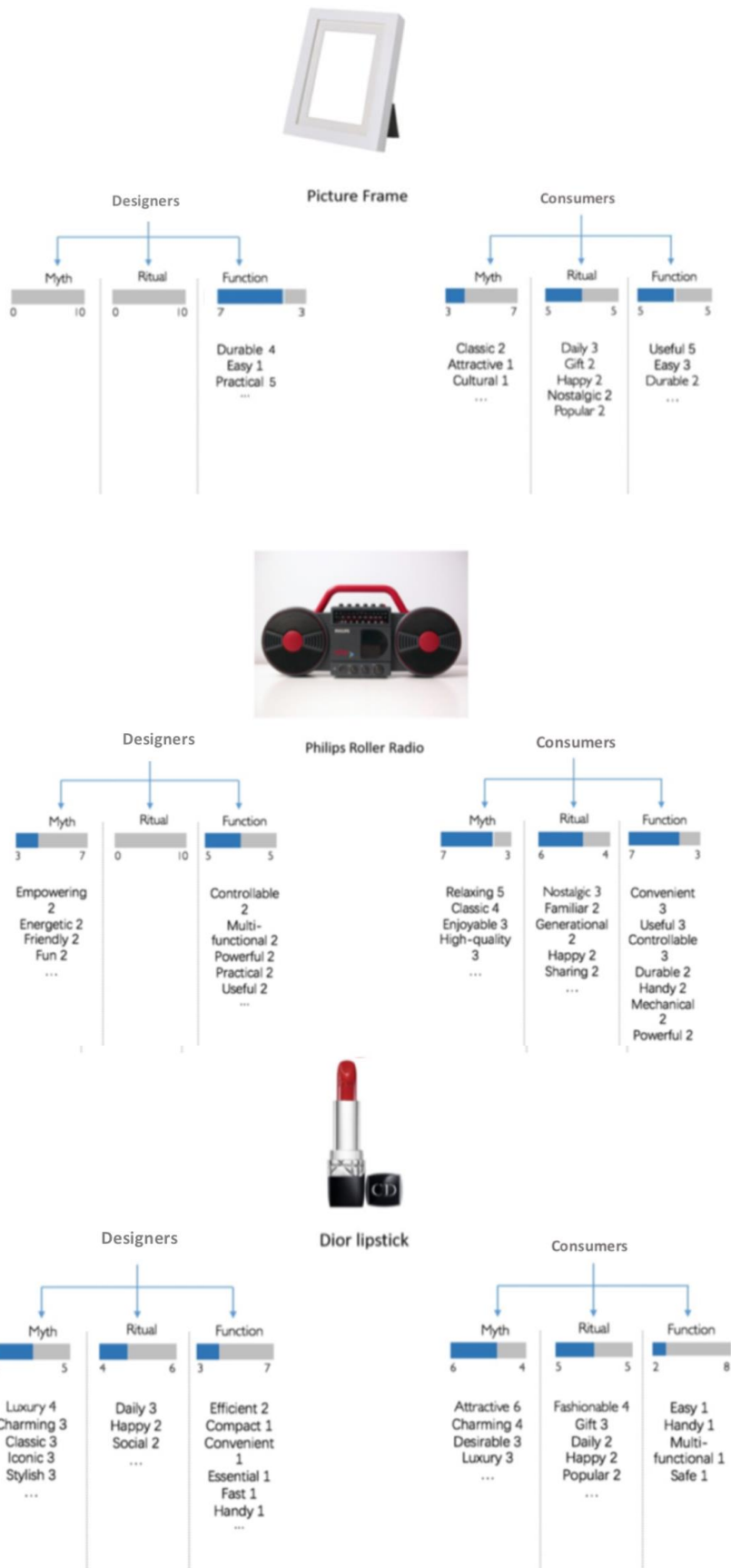
## Picture Frame

**Designers**

| Myth | Ritual | Function |
|------|--------|----------|
| 0 — 10 | 0 — 10 | 7 — 3 |
| | | Durable 4 |
| | | Easy 1 |
| | | Practical 5 |

**Consumers**

| Myth | Ritual | Function |
|------|--------|----------|
| 3 — 7 | 5 — 5 | 5 — 5 |
| Classic 2 | Daily 3 | Useful 5 |
| Attractive 1 | Gift 2 | Easy 3 |
| Cultural 1 | Happy 2 | Durable 2 |
| ... | Nostalgic 2 | ... |
| | Popular 2 | |

## Philips Roller Radio

**Designers**

| Myth | Ritual | Function |
|------|--------|----------|
| 3 — 7 | 0 — 10 | 5 — 5 |
| Empowering 2 | | Controllable 2 |
| Energetic 2 | | Multi-functional 2 |
| Friendly 2 | | Powerful 2 |
| Fun 2 | | Practical 2 |
| ... | | Useful 2 |
| | | ... |

**Consumers**

| Myth | Ritual | Function |
|------|--------|----------|
| 7 — 3 | 6 — 4 | 7 — 3 |
| Relaxing 5 | Nostalgic 3 | Convenient 3 |
| Classic 4 | Familiar 2 | Useful 3 |
| Enjoyable 3 | Generational 2 | Controllable 3 |
| High-quality 3 | Happy 2 | Durable 2 |
| ... | Sharing 2 | Handy 2 |
| | ... | Mechanical 2 |
| | | Powerful 2 |

## Dior lipstick

**Designers**

| Myth | Ritual | Function |
|------|--------|----------|
| 5 — 5 | 4 — 6 | 3 — 7 |
| Luxury 4 | Daily 3 | Efficient 2 |
| Charming 3 | Happy 2 | Compact 1 |
| Classic 3 | Social 2 | Convenient 1 |
| Iconic 3 | ... | Essential 1 |
| Stylish 3 | | Fast 1 |
| ... | | Handy 1 |
| | | ... |

**Consumers**

| Myth | Ritual | Function |
|------|--------|----------|
| 6 — 4 | 5 — 5 | 2 — 8 |
| Attractive 6 | Fashionable 4 | Easy 1 |
| Charming 4 | Gift 3 | Handy 1 |
| Desirable 3 | Daily 2 | Multi-functional 1 |
| Luxury 3 | Happy 2 | Safe 1 |
| ... | Popular 2 | |
| | ... | |

*Figure 4: Adjectives provided by the designers and the consumers for three representative artefacts*

## Conclusions

Previous research has suggested three primary categories of meaning which designers should consider during their design processes, i.e. function, ritual and myth, which cover a spectrum from the purely instrumental to the purely symbolic. The research hypothesis of the current study was that the previously identified three primary categories of meaning would be commonly encountered in practice, and that statistically significant differences would occur between designers and consumers.

A semi-structured questionnaire was deployed with ten designers and with ten consumers using a set of twenty photographs of designed artefacts. The results suggested that all three categories of meaning, i.e. function, ritual and myth, could occur individually or could be co-present to some degree. The results further suggested that statistically significant differences occurred between the group of designers and the group of consumers in the indicated category of meaning and in the adjectives used to describe the artefacts. The results would thus appear to support the research hypothesis.

A point of note in relation to the results of the current study is the prevalence of functional attributions. For both the group of designers and the group of consumers, functional meanings were the most frequently attributed and functional adjectives were the most statistically prevalent. The results suggest a greater facility, or at least a greater propensity, for instrumental judgements.

A finding of the current small exploratory study is that some divergences in meaning may be occurring between designers and consumers. For most of the artefacts there were a greater number of ritual and myth meanings indicated by the group of consumers than by the group of designers. The current results thus seem to highlight the need for carefully executed ethnographic and user testing activities.

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