



## The consumer's experience of design influences how markets work

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### **Introduction**

Most studies in marketing operate at a market level, which also becomes frequently the condition for design work. This means that the aggregate or weighted average consumer is the focus. Having already made this aggregation as the “top-down approach” indicates, it is not feasible to take the individuals apart and explore how they differ individually. This is so because already the concepts and the methodology are founded at the aggregate level. The differences have been eliminated and replaced by an assumed normal distribution or similar. We depart from that and start our investigations at an individual level. This means, in the “bottom up” approach we keep the individual variation or differences intact for further analysis. We base our concept and methodology at the individual level. Only then, understanding what happens for the single individual we can eventually aggregate to see the consequences at a market level. We explore a procedure that enables the marketer to estimate the effect of a marketing message like a mission statement in a logo at the level of a single individual. This is a prior to market test, with its own realism. The procedure can easily be extended to products, where both quality and price (willingness to pay) are issues and it can also be used as a follow-up after the round of pre-test.

To satisfy individual users, real individuals should be considered in their heterogeneity. Relevant psychological and statistical methods and reasoning are useful in keeping the trace of the individual. In the bottom up approach we measure *how much* the influence of a *treatment* like that of facing a particular design influences each human being. Successively, one may see if other behavioural characteristics also unite for instance those who are heavily affected or those who are not. Then a new behavioural based community may appear.

### **Cognitive models may explain individual experiences of design**

Designs are perceived and managed intentionally in the mind of the prospective customer (Malafouris 2013). This means that the perception takes place at an individual level. We assume a problem-solving and active perceiver rather than a passive response. Rather than to test every aesthetic element independently, everything is seen as a whole and measured according to an

idiosyncratic (or random) processing. In the case of a logo, the situation concerned is not so much the actual product as the producer or marketer who wants to signal a brand or just availability. The user or customer uses a logo to inform themselves about possible offers and to make a choice (Henderson and Cote 1998). This is complementary to the marketer who informs by the intentions of the visual elements, often expressed as a mission statement. For the user or customer, the availability of the logo is an affordance, enabling them to make a choice and subsequently experience the benefit from a choice of an artefact, object, service or experience.

A market is a mechanism that transmits information (Hayek 1948) between various stakeholders; those who offer something, competing offers, prospective buyers and regulating public institutions. When such information is treated as knowledge, which means perceived, valued as credible and relevant the market may become a *cognitive mechanism* (Clark 1996, Hutchins 2004, Malafouris 2013) and people may use the information to create knowledge. According to Johnson (1987), pervasive features of bodily experience of the environments comes from the perception of the human body and forces dealing with movement, keeping a position, using the body for practical purposes.

In cognitive terms, the explanation is that *image schemata*, describing a repeated and often stereotypical action (p. 65). Several image schemata are more complex than this indicates, and it also makes sense that human beings need to name them to create meaning for themselves and to share with others. With image-schemata as the elementary building bloc, metaphors and metonyms provide synthetic knowledge impacts and naming (Lakoff 1987, Lakoff and Johnson 1999). Terms like force, move, transport, fall, fly, take off all rely on image schemata and using metaphors we are able to refer to specific instantiations. Also formal or propositional models serve this function by setting standards for measurement and human scales of everything. Both outside and inside markets, humans may communicate using tacitly agreed standards like an inch, a foot, intimate distances, dancing, references to other language areas (likings) and focus of particular issues (the Hill or Number ten) of complex objects as well as being there, doing bodily things. As Woody Allen has stressed, “80% of success is just being there”.

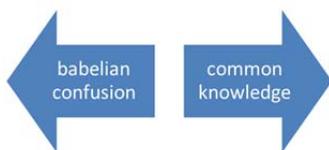
At an individual level the following happens: The individual experiences something with their senses and judge this to be good or bad. What constitutes a good experience? When is a design good for the person, who has the experience? A process view is proposed to indicate that a good design is “easy on the mind”, Mayvis and Jervis (2001) who adds a mediating variable, “fluency” meaning a logo perceived with a minimum of cognitive work. Cognitive work is typically measured by response times, how fast or easily respondents can get the message (Reber, Winkielman and Schwarz (2004). They claim that what is easy on the mind may be preferred or simply found more beautiful than alternatives requiring more struggle. The concept has also been used in connection with branding (Lee and Labroo 2006). This is where logos come in. Logos promise that the company behind will deliver something valuable in the future, given that the customer accepts to buy, pay and pick up the goods. Logos are setting expectations by communicating certain visual (and verbal) key figures that refer to the product, artefact, system or experience.

The aesthetic elements are known as gestalt forms. Henderson and Cote (1998) use these well-known principles researched during the history of aesthetics by Gestalt theorists such as Gombrich (1972) and Arnheim (1974). They were simple principles shown to attract attention and to create beauty. Gestalt phenomena are considered to be of a biological and even universal validity (Ramachandran and Hirstein 1999). The next section takes us into the societal level of analysis.

### **Heterogeneity between Babel and Common Knowledge**

Babel is the Christian story of how people from many cultures spoke a mutually understandable language came to work together and wanted to build a tower to “heaven”. The god got angry and made it so every individual speak different languages. Confusion and lack of ability to complete the tower meant it all fell apart. The scale may encapsulate any position from which anyone acting in a regime of varying knowledge works from. The Babelian confusion is a rare situation where people are unable to communicate because nobody understands what others see or talk about. This is unrealistic for human beings since we know (Morris 1994) that body language may integrate even very remote cultures.

On the other hand recent research shows considerable variation in a group of people, randomly selected, who were asked to consider the meaning of certain logos and their mission statements. Excluding the sampling error the *idiosyncratic variation* was typically concerned with 80 – 90 percent so that the shared message amounted to 10 – 20 percent, which means there was an overwhelming variation in the way logos were seen when respondents were shown the logos. By *idiosyncratic variation* we mean the individual experience of perceiving a message, for instance a mission statement. However, when a new design was introduced in the form of an integrating language, subculture or common language, the idiosyncratic variation decreased considerably. By providing a common background for understanding, for instance a story, a particular epic, style or genre the variation was reduced considerably and more mission statements were understood.



Common knowledge is the contrary situation to Babelian confusion, everybody knows the same, and they also know that the others know ad infinity. Common knowledge is a formal concept formed within modern game theory (Lewis 1969, Aumann 1974). The extreme version may look like grand media events like Olympic Games or Super bowl, US presidential election, where large parts of world population are spectators (Chwe 2001). Also with the birth of mass media, there was usually only one channel and everybody was listening or viewing the same programs. With multiple programs and channels - not even to think about the internet - that has changed dramatically and big steps have been taken in the direction of the Babelian position.

While this means less common knowledge, it does not also necessarily mean problems-except when it is vital for someone in particular that everybody knows everything etc. The French general De Gaulle said: How can you govern a country which has two hundred and forty-six varieties of

cheese? (“Comment voulez-vous gouverner un pays qui a deux cent quarante-six variétés de fromage”? Mignon 1972). It seems common knowledge, more than Babelian confusion that supports a political system or government. Also a movement towards confusion may have costs in a society in the sense that knowledge of crafts, procedures, may be less common, such as information costs, even asymmetric information (Akerlof 1980).

A major issue concerns what we may call cultural diversity. What it directly concerned depend on the analysis at hand, but such issues as values, norms and rites are examples.

A value represents a slogan capable of providing for the rationalization of action by encapsulating a positive attitude toward a purportedly beneficial state of affairs Rescher (1969 p. 9). This is indeed an intellectual or articulated way. Values are to a large degree seen as symbols or experienced (Boztepe 2007). An experienced value does normally need no articulation or explanation. For instance by travelling, tasting food from other regions, meeting people with different backgrounds provides variation in experiences which are mostly absorbed through the emotions or feelings (Damasio 2003). When experiences seem really odd, like culinary experiences that is taboos like in many western cultures eating horse, dogs, cats, insects or very strange do the signal come that there is something alien or potentially dangerous going on. Domestic experiences may be noted if they are particularly good or very strange.

What kind of elements creates this variation? As we suggested above, a source of variation comes from the perlocutionary utterance and another from the perlocutionary. Is one dominating the other and is there an interaction between them?

#### **Introducing experiments to explore these experiences**

We experiment as a way of exploring how prospective users or customers value the outcome when given a paired choice. “Will you take this one or that one” is based on using a computer, iPad with a screen showing visually pairs of choices with a line – scale - between. We may test a number of options and add prices, brand names and stories and use conjoint-layouts. The respondent is asked to move the cursor towards the preferred choice and move it so close to the preferred choice that the closeness indicates the strength of the preference. By letting the same respondent make more paired comparisons with varying options we may estimate the respondent’s rating of a several items which enables us to rank order how strongly each object, artefact, model or prototypes is preferred by each single respondent in a sample of users. We consider such a rated rank order of objects or service a preference profile. The core is that by experimenting we can construct individual preference profiles, i.e. characterizing the single individual in contrast to characterizing a market. The data collection is web based and may be done anywhere, also when no internet is available because the connection can be made later. We need to develop a statistical program to deal automatically transforming the data to a comprehensible output with statistical tests, graphs etc. The research design needed to explain and measure how logos serve as communication elements and how effective they are, depends on a setup using the web. It is important (Louviere, Flynn and Carson 2010) that the experimental procedure reflects the real behaviour it is supposed to explore and explain. This means that a normal choice experiment, where tangible goods are to be investigated

best take place in a real shopping environment and that the sequence of the experiment simulates a real behavioural process. Only if the experiment is intended to explain what happens online, should web designs be used. A common way of using picture of real objects on a pure web design is a poor research design when it is supposed to show what happens in a real shopping process. Similarly should experiential studies of what the user or consumer experience and may feel satisfied with take place in their homes or else where such experiences take place. In the current study we use a web-based design because it is common that the first time a respondent meets a new logo and considers its promises take place on the web. The implicit conceptual model consists of assuming the existence of a latent metric ranking for each individual. This means we only regard actual respondents and disregard sampling error that comes for the assumption of a particular (e.g. normal) distribution.

In marketing the answer to the usually posed question “How many?” relates to a population or a market; implicitly by this “counting-approach” we are measuring a market. By sampling we usually want to estimate *the fraction* of some properties, e.g. democrats, republicans. In this case we pretend that all democrats are “equal” and similarly that all republicans “equal”. To achieve knowledge about the desired fraction from sampling no more information about the single respondent is needed than whether the single respondent is a democrat or a republican. In this case the viewing angle or the model implicitly becomes a so-called “Urn model”, that is an urn with a fixed number of balls, each being either red (democrats) or green (republican). Drawing in random a number of balls we can from the sample estimate the fraction of red balls (democrats) in the population by the fraction of the observed red balls (democrats) in the sample.

The question is what is random from this viewing angle – or this model? The balls have fixed colours (democrat or republican) and what is random is which ball is chosen.

A totally different viewing angle is the following; we ask a person which president candidate he will vote for. In this case we consider the question a random experiment with two possible outcomes namely democrat or republican and what is random is what the respondent answers. Again we can estimate the fraction of respondents voting for e.g. democrat by the fraction answering “democrat” on the basis of a random sample of voters. The two perspectives will in this setting lead to the “same result”, as both will yield consistent estimates; however, the two perspectives are quite different from a more theoretical point of view as the consistency is based on quite different probability arguments.

The first perspective is focusing on the population, the second is focusing on the respondents in the sense that in the last case we observe respondents and from these individual observations we may – under certain conditions (model assumptions) - aggregate to a population giving answer to the question of fraction of democrats.

In that sense the two models are totally different – they are in the words of Kuhn incommensurable, although both view angles can give “correct answer” to the question. The last model is called an inferential model indicating that it is a model – whereas the Urn model is referred to as random sampling procedure (or model) – downplaying that it “of course” is a model. The sampling approach

cannot intuitively be extended to treat more attributes of the respondent. Doing that by giving the balls more than one color leads to an “Elaboration” procedure, being a top-down procedure initiated among others by the sociologist Lazarsfeld and others. The inferential approach, however, can easily be extended by observing more attributes of the same respondent. In this case the result of the analysis may be aggregated to the level of the population, which is a bottom-up approach. The basic idea is here that the sampling approach is a top-down approach whereas the model approach is a bottom-up. The sampling approach is usually focused on analyzing fractions – and “explaining” why some fractions are different. It is in this model difficult to talk about variation as the variation implicitly is a function of the fractions. In this model there is no real concept of variation among subjects. We therefore introduce continuous measures and we include several objects which are mutually compared. In experiments we apply paired comparisons, using Thurstone (1927) scales which enables both a continuous measurement and also works at a non-numeric registration by allowing respondents to move a cursor on a screen to indicate the proportion of which s/he prefers one out of two options.

By variation we mean two different concepts. We consider the common preference profile, defined as that part of the individual preference profiles which is shared by all individuals. This may be considered as a characteristic of the population. Secondly we consider how much the individual preference profile differs from the common preference profile. This difference is due to individual peculiarities and is the idiosyncratic deviance. The sum of the idiosyncratic deviances is the *idiosyncratic variation*, which is the variation each person attributes to a statement vs. the common variation of subjects in a market. A variation seen by the individual means that the message is received with its complexity and meaningfulness while a big idiosyncratic variation means that people understand different things and a Babylonian confusion is the outcome. Also differences between cultures are investigated, but in general found to be of limited size compared to the between subject- variation. If the between people variation dominates, it means that there are many competing interpretations in the market and that the market is fragmented. This implies that agents are limited in their ability to compare and talk about the market message.

## **Conclusions**

In a given situation to estimate the model we perform an experiment. That is we construct a setting from which we can relate the outcome of the experiment to the parameters of the model. In general there are many ways to interpret the result of an experiment so we have to be very carefully using an appropriate statistical design.

In marketing the answer to the usually posed question “How many?” relates to a population or a market; implicitly by this “counting-approach” we are measuring a market. By sampling we usually want to estimate the fraction of some properties, e.g. democrats, republicans. In this case we pretend that all democrats are “equal” and similarly that all republicans “equal”. To achieve knowledge about the desired fraction from sampling no more information about the single respondent is needed than whether the single respondent is a democrat or a republican. In this case the viewing angle or the model implicitly becomes a so-called “Urn model”, that is an urn with a fixed number of balls, each being either red (democrats) or green (republican). Drawing in random a number of

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## References

- Ekman, Paul (1999) Basic Emotions In T. Dalgleish and M. Power (Eds.). Handbook of Cognition and Emotion. Sussex, John Wiley & Sons, Ltd.
- Elster, Jon (2007) Explaining Social Behavior More Nuts and Bolts for the Social Sciences Cambridge: Cambridge University Press
- Gombrich, E.H. (1979) The Sense of Order A study in the Psychology of Decorative Art London: Phaidon
- Gombrich, E.H. (1999) The Uses of Images Studies in the Social Fiction of Art and Visual Communication London: Phaidon
- Haramundanis, K. (1996). Why icons cannot stand alone. ACM Journal of Computer Documentation, 20(2), 1-8.
- Jaffe, Sonia Patricia (2015) Essays on Heterogeneity in Markets and Games A dissertation Harvard university <https://dash.harvard.edu/bitstream/handle/1/17467179/JAFFE-DISSERTATION-2015.pdf?sequence=1> downloaded 23. november 2015
- Louviere, Jordan J., David A. Hensher and Joffre D. Swait (2000) Stated Choice Models Analysis and Applications Cambridge: Cambridge University Press
- Louviere, Jordan J., Terry N. Flynn and Richard T. Carson (2010) Discreet Choice Experiments Are Not Conjoint Analysis Journal of Choice Modelling 3 (3) pp. 57 — 72
- Ziliak Stephen and Deidre McCloskey (2008) The Cult of Statistical Significance How the standard Error Costs us jobs, Justice and Lives Ann Arbor: University of Michigan Press
- Pittard, N., Ewing, M. & Jevons, C. (2007). Aesthetic theory and logo design: examining consumer response to proportions across cultures. International Marketing Review, 24(4), 457-473.
- Ramachandran, Vilanur and William Hirstein (1999) The Science of Beauty Journal of Consciousness Studies Vol. 6, 15 - 51
- Reber, Rolf, Piotr Winkielman, and Norbert Schwarz (1998) "Effects of Perceptual Fluency on Affective Judgments," Psychological Science, 9 (1), 45-48.

- Reber, Rolf, Norbert Schwarz and Piotr Winkielman (2004) Processing Fluency and Aesthetic Pleasure: Is Beauty in the eye of the Perceiver *Processing Experience Social Psychology Review*, Vol. 8, No. 4, pp. 364-382
- Rosbergen, E., Pieters, Rik, & Wedel, M. (1997). Visual attention to advertising: A Segment-Level analysis. *Journal of Consumer Research*, 24(3), 305-314.
- Schmitt, B.H. & Simonson, A. (1997). *Marketing aesthetics*. The Free Press, New York, NY
- Schwartz, S. H. (1994). Are there universal aspects in the content and structure of values? *Journal of Social Issues*, 50, 19-45.
- Searle, John (1969) *Speech Acts: An Essay in the Philosophy of Language* Cambridge: Cambridge University Press
- Thurstone, L. L. (1927) The method of paired comparisons for social values. *The Journal of Abnormal and Social Psychology*, Vol 21(4), Jan-Mar, 384-400. <http://dx.doi.org/10.1037/h0065439>
- Veryzer, Robert W. and J. Wesley Hutchinson (1998) The Influence on Unity and Prototypicality On Aesthetic Responses To New Product Designs *Journal of Consumer Research* Vol. 24 March 374 – 394