# THE POWER OF DESIGN - EVALUATION OF DESIGN NEEDS IN AN INTERDISCIPLINARY STUDENT PROJECT

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## ABSTRACT

The aim of this student project, which was embedded in a diploma thesis, was to distinguish the test persons into groups of "early adopters" and "followers" by using a quantitative questionnaire. In a second step, the different groups had to develop and present their collages, which they think best represent their design needs. All this was performed in an interdisciplinary effort between the degree programs of "Design and Product Management" and "Business and Information Management" at the Salzburg University of Applied Sciences. As a result, this preliminary study provides evidence that different consumer groups strive for different levels of design needs and therefore, show individual purchase behaviour.

*Keywords: design needs, interdisciplinary, collage technique*

## 1    INTRODUCTION

*"Only one company can be the cheapest – all the others must use design." (Rodney Fitch, Chairman, Fitch RS Plc.)*

In recent years, many authors have focussed on describing a paradigm shift which can be observed in modern societies ― the continuously growing orientation towards design [1]. Changing lifestyles, customer empowerment, and social movements can be seen as the major reasons for this trend [2]. Moreover, empirical research shows that investment in design pays off. Over a period of three years, Roy and Potter analysed the effect of increased investments into design on 221 small and medium-sized businesses. They can satisfactorily show that there is a strong correlation between investment in design and the company's success in terms of operating financial figures as well as in terms of pre-economic values, such as customer satisfaction and positive word-of-mouth recommendations [3]. Similarly, a ten-year-study conducted by the Design Council shows that the stock quotations of these 66 companies (out of 166 in total), whose design efforts were assessed as above average by an expert group, performed significantly higher [4]. Based on a large scale of empirical analysis of over 100 British companies, Roy and Bruce conclude: "The answer to the frequently posed question ´does good design pay?´ is thus a qualified ´yes´. Investment of resources in design can be a key factor in commercial success, but does not guarantee it." [5] The authors continue by stating that investment in design is only profitable if there is a strong integration and cross-linking with the marketing efforts of a company [5]. Additionally, a special focus should be placed on the early phases in the design process (i.e. idea generation, idea evaluation, design concept and concept testing), which are the base for all following development steps [6]

and in which the success or failure of a product innovation is determined [7]. The fact that marketing efforts and intensive cross-linking activities in the early stage of a design process are demonstrably important is regarded by many companies only to some extent ― the striking number of product flops can be seen as indicator for this. Thus, the rate of product-flops ranges, depending upon the branch, from 30% to 70% [8].

## 2    MARKETING (RESEARCH) AND DESIGN – A CRUCIAL INTERFACE

This stresses the importance of design research but apart from a few exceptions, marketing research has dealt only scantly with the topic of design, design research, allied to design research and consumer behaviour. At the moment, surveys are available about information processing of design information [9], as well as about semiotic design interpretation [10]. Methods for evaluation of primary design needs are mostly based on verbal forms of collection [11]. Advertising research, as well as product innovation research, offers a multitude of concepts and methods in the area of advertising effect research [12], product concept testing and acceptance testing [13] but design impacts play a limited role.

In theory, the design-marketing relationship is characterised by one common task: both disciplines focus on consumer wants and needs [14]. In practice, this relationship also demonstrates some difficulties and misunderstandings, like the management-design relationship. Designers mainly collaborate with marketers on product specifications and therefore, they tend to ignore other marketing responsibilities [14]. Otherwise, marketers do not recognise design as a process; they see it as a creative output [14]. This is the initial position of the program "Design & Product Management" at the Salzburg University of Applied Sciences.

## 3    TWO DIFFERENT CURRICULA – ONE WORKING COOPERATION

This paper poses the cooperation between the two degree programs "Design and Product Management" and "Business and Information Management". In both fields, design and the design process play an important role. Design is hereby defined as an interdisciplinary strategic process influenced by different departments such as marketing, production, R&D, and others. All these stakeholders have a creative and innovative part in this process. Aesthetics, technological and business views come together to form a product that satisfies (or even anticipates) customer needs, wishes and wants. In both programs, design is regarded as a way to realise innovation. Both programs handle design as a part of the business creation process. Design is considered as an in-house expertise leading to economic and emotional (brand) value. In other words, it leads to the "total customer experience" [15]. The field of design is regarded as a way to bring passions and visions to life. Thus, we try to close the so called "educational gap" between designers and managers [16]. Consecutively, the two afore-mentioned degree programs are described in detail.

### 3.1 Design and Product Management (DPM)

The first four semesters form the basic study and are the same for all students. As of the fifth semester, students decide whether they wish to place the focus of their future work upon the marketing or organisational area. In addition, they choose one of three fields in which to study in greater depth – furniture, interior design (design of shops, exhibition stands, POS, etc.) or industrial design. Due to small groups, the quality of coaching and of the projects is ensured. In the seventh semester, students must complete a job intern-

ship, either at home or abroad, in a company engaged in a business relevant to the course of study. The education consists in equal parts of economics and management content, on the one hand, and the field of organisation/design on the other, as well as general, basic studies.

## 3.2 Business and Information Management (BWI)
The Business and Information Management course of study, established in 1998, offers a technical university education leading to a formal qualification for economists, with the focus on information and communications technology, coupled with social skills. Case studies are closely related to practical situations and projects with business enterprises train and develop management skills along with corporate thinking and acting. From the fifth semester onward, students may choose one of three directions for specialisation – controlling & finance, manufacturing & logistics or marketing & media management.

## 3.3 Interfaces – Fields of Cooperation
Even though the two programs are scattered across two different university campuses, there has always been a tight cooperation in the fields of marketing and design. The level of cooperation ranges from regular teacher exchanges to joint projects and joint research efforts. A recent research grant by the Austrian Research Promotion Agency (FFG) favours team work between the programs. Here, researchers from both fields work together in a four year program. This is meant to initiate innovative projects like the one mentioned below.

## 4    RESEARCH PROJECT
### 4.1    Background
Design has always been one of the most important reasons why consumers buy a product and thus, determines a company's success. Today, design is more than "just" business – it embodies values and ideology, and its aesthetic impact spreads and grows throughout Europe. Hence, companies can gain competitive advantage through design and therefore, it is necessary that design is a fundamental part of the overall business strategy and that it is implemented into all decision-making levels. Additionally, creating powerfully designed products that are more user-oriented, more ergonomic and more appealing than competitor's products means focusing on consumer needs and gaining an understanding of consumer behaviour and emotions.

Therefore, this research focuses on consumer design needs, as every consumer has specific needs that he/she wants to satisfy by buying a certain product that meets them. Despite different assumptions of needs most theories have two key statements: first, people have different needs that motivate and provoke certain behaviour; and second, needs have different priorities and can vary over time [17].

Probably one of the best known theories about classifying human needs is Maslow's hierarchy of needs. He proposed five different categories: physiological needs, which are necessary to survive, safety and security needs, social needs for love and belonging, egoistic or esteem, and finally the need for self-actualisation [17]. For this study, empirical research is drawn from the list of needs developed by the authors Yalch and Brunel [18]. Generally, they adopted Maslow's hierarchy of needs in order to better correspond to product design. A detailed overview is presented in the following table.

Table 1. List of needs by Yalch/Brunel [18]

| Needs | Conceptual Definitions |
| --- | --- |
| (1) Basic function | Ability to perform the primary product function |
| (2) Safety | Reduce concerns over physical safety and harm |
| (3) Ease of use | Need to immediately use the product without any complicated instructions. |
| (4)Affiliation and belongingness | Satisfy the need to be accepted by others |
| (5) Achievement | Satisfy basic desire to demonstrate success |
| (6) Beauty | Satisfy desire to have attractive things in environment |
| (7) Variety seeking | Maintenance of a preferred level of psychological arousal and stimulation |
| (8) Self-expression | Need to develop freedom in self-expression |

## 4.2   Problem definition

Irrespective of the model for consumer needs, people rarely will reach a point of total satisfaction because as soon as one need has been met by a product a new one will rise, and people will look for something new and more satisfying [13]. For this reason, companies must anticipate these needs, produce products that satisfy them and also adapt their design strategy to individual demands. Thus far, there is no explicit study that emphasises the design needs of various consumer adoption groups or on research methods that will aid in discovering these needs. Therefore, this research presents a first approach to point out differences between needs of "early adopters" and "followers" and the importance of integrating this knowledge into the design process and strategy as early as possible.

## 4.3   Research Design

The interdisciplinary study was done in the context of a diploma thesis from a student of the course of study "Business and Information Management" and it was performed in form of a collage technique by a group of 34 students of the course of study "Design and Product Management" at the Salzburg University of Applied Sciences.



Figure 1. Group of DPM students

The first step was to collect data about the students in order to divide them into groups of "early adopters" and "followers". The data was drawn from a quantitative research method, a questionnaire, with a series of five-point bipolar scales including statements that represent different purchase behaviour styles, personal attitudes and values concerning products and design. On this basis, a relevant industry for the study was determined (consumer electronics — an industry of which the sample group is familiar) and the test persons were analysed and distinguished into three groups of "early adopters" and two groups of "'followers". In a

second step, subjects were asked to collect pictures that represent their needs for consumer electronics, make a collage and present their results. They were also shown the eight needs by Yalch and Brunel [38] and a short overview of consumer electronics-related products.

## 4.4  Hypotheses and Results

There were two hypotheses. The first one concerned the differences between needs (H1: Do early adopters have differing parameter values concerning design needs than followers?), whereas the second hypothesis concerned differences in the level of needs (H2: Do early adopters have higher level needs than followers?).

As the qualitative collage technique demands a very sensitive analysis, each work was shortly presented and explained by the groups. In the analysis of early adopters and followers it became clear that there are both similarities and differences between the two adoption groups. On the one hand, both groups expect products that satisfy the need for basic functions and have a beautiful appearance, but on the other hand, early adopters clearly attach greater importance to higher level needs. Examination of the early adopters showed that this group strives for products that offer multiple possibilities in order to express their individual style. Current trends play a secondary role, as variety seeking and the need for self-expression are of highest priority. Additionally, this group is inspired by its environment and tends toward emotional and impulsive purchase decisions. Followers, by contrast, prefer products that are already well established and recognised on the market and offer the possibility to trace back a product's development process and image, as well as a product's language and meaning. Generally speaking, they are driven by cognitive judgments and emphasise lower level needs, in particular the need for safety, affiliation and belongingness.

## 5    PRELIMINARY CONCLUSIONS

In this interdisciplinary research the authors explored differences in design needs between the two consumer adoption groups "early adopters" and "followers". The test persons were distinguished into groups according to the results of a quantitative questionnaire and were afterwards asked to make a collage and present their findings. In summation, the results support the authors' alternative hypotheses, in presenting that the two adoption groups have some common needs, like basic functions and safety but differ in their parameter values (H1). Early adopters on the one side consider these needs but put low emphasis on them, whereas followers, on the other side, prioritise these lower level needs over higher ones. Consequently, the second hypothesis can be proved (H2) by confirming that according to this study, early adopters do have higher level needs than followers. The latter group is more turned on by satisfying the need for safety, affirmation and belongingness, whilst early adopters, in contrast, strive for achievement, beauty, variety-seeking and self-expression. Due to these findings, it is advisable for companies to integrate this knowledge from the very beginning of the design process and to adapt the overall design strategy to individual consumer groups as they differ in product judgments and purchase behaviour. As such, a consumer-orientated design strategy offers the company the ability to serve customers with true benefits. Nonetheless, it is worth mentioning that this study is the beginning of a far-reaching market research. But due to its small sample group (of students) the current study may be seen as biased and therefore offers limited validity and reliability.

In addition, beyond the empirical results, students gained insights and valuable experiences in market research and could strengthen the relationship between a marketing-related approach (course of study "Business and Information Management") and design-related view (course of study "Design and Product Management").

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