

SkiMate;

A PRODUCT DEVELOPMENT BASED ON USER'S NEED

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Abstract: Users judge a new product on a series of product features based on their knowledge and expectation. Products with emotions are more usable and desired. The aim of this paper is to study on user's emotions and needs to design a new product for carrying ski equipments. The important issue is to identify the users' emotional orientations and demands in order to find out what their expectation of this tool would be.

Existing ski carriers were evaluated, and research theories and methods on Emotional Design were also reviewed. Research data were collected through interviews and surveys of more than 100 skiers between 15 and 45 years of age. Research findings were produced by analyzing the data and led to develop a new, advanced product based on existing alternatives.

Finally SKIMATE was designed which, in spite of having a simplicity in form and being light, raises enjoyment, amazement and satisfaction of costumers.

Key words: *Emotional Design, Product Design, User's need, Ski Equipments*

1. Introduction

The aim of this paper is to study on user's emotions and needs to design a new product for carrying ski equipments. The most important issue in this regard is to identify the users' emotional orientations and demands to find out what their imagination and expectation of this tool would be.

In order to achieve an appropriate result, the approach of 'Emotional Design' was adopted which implies studying users' emotional response and stimulating emotions such as pleasure and satisfaction in them. It addresses user's needs and desires which is at the center of product or technology development.

User Needs are conditions or situations in which something is required or wanted by the users. The increasing emphasis on human subjects in design practices requires ID designers to re-think how one user changes his or her needs under different contexts. In order to do so, designers first have to define the user and use context first. Then, can they research and analyze the user needs. In order to describe user's need, it's better to take a brief look on common ski equipments. Skiing, one of the most energetic types of sports is highly influenced by new technologies. Ski equipments have been improved over time due to their technology of production, safety and aesthetic values. Apart from main ski equipments, some accessories have been designed to promote comfort and safety of users.

While using a pairs of skis, ski boots and poles are essential; too many equipments and accessories, like gloves, helmet, protecting glasses, and ski suits are usually used by ski players. Skies have equal length of ski player's height, and are made of specific hard and heavy materials. Made by injected foam, ski boots are designed to bear

under high pressure in different position while skiing, so they are heavy and voluminous. On the other hand ski players often keep pair of poles in high about half their length. Usually access to Piste Gate from parking needs to pass through long and pitched roads and carrying ski equipments in this situation are so hard.

According to advanced studies, 97% of ski players carry their skies in their shoulders and 37% of them carry their ski boots on hand and remaining prefers to put on their boots during going to piste. In addition since there is no any other option, almost all of ski players carry their poles by hand. (Picture 1)



Picture 1 carrying ski equipments

Because all of these equipments are heavy (the average of ski equipments' weight is between 8 and 15 kg), carrying them by hand will cause pain and bad position in back and shoulders. Moreover, slippery snow covered surfaces and pitch of piste access roads make more problems.

As we recognized the problem, we studied all existing products in the market in order to find out why skiers are reluctant to use them anymore. The results shown that although they are useful in function, they could not make an emotional relationship with users. Thus we studied on users' needs and emotions to design an emotional product.

2. Material and Methods

This project has been done in 2 steps: First, we focused on design research through literature review and survey. Second, we developed final product based on design researches and innovative methods.

2.1 Research process

The research processes are to:

1. Investigate literatures on Emotional Design Background, Ergonomic Studies, materials and manufacturing methods and etc.

The research process begins with the literature review that is very important to this study. Emotional design requires enormous amounts of data from different aspects which are impossible to be gathered by individual designers or from individual studies. There is no established design method since the concept of emotional design is still relatively new to the field of industrial design. A review of other research studies in emotion in design provides a background to investigative methods.

2. Study on users' need and taste through observation, interview, and questionnaires.

This paper has been sequentially organized in accordance with the result of those mentioned processes.

At first, in order to become familiar with skiers' needs, a series of site observations and interviews were conducted during a whole day skiing, from skiers arriving with their cars till departing, between February 1st and March 6th, 2008, both in day and night shifts. 116 random elected skiers, male and female aged between 15 and 40 were investigated through a questionnaire, which it was prepared based on existing and new arrival ski equipments.

Skiers were investigated about their existing problems and needs. In addition a list of ski equipments pictures presented to them, which facilitated the assessment of their taste on color and pattern. They asked to find their preferred ski suits colors among main 12 colors palette. Also the pictures of new fashion collections of ski suits, promoted with most famous ski brands, collected and categorized in two main plain and patterned groups that each group has 8 suits. They asked to rate suits by giving a number among 1 to 8 which 1 used as lowest attraction and 8 used as highest attraction. We scanned the market to collect existing unused ski carriers. KJ Method was used to categorize products into 4 major groups. Skiers were asked to “Why they do not use existing models?” and “what are the advantages and disadvantages of each group?” We studied these questions in order to find out questionnaires taste and attractions. Base on above studies results and literature review information, we prepared a list of users’ needs and attractions that makes our design criteria. That list would work as a check list in design process to ensure that final product will be applicable in the most cases of use; even more, it will emotionally raise enjoyment and satisfaction of costumers.

2.2 Design

Since we achieved users’ respects and desires, we have been able to develop our own ideas in different sketches. According to the holistic problems and the results of design research, design process starts with innovative methods such as brain storming and WH questions. Innovation, not only to create a functional product, but also to satisfy a high level of users’ emotions brought us varieties of sketches and forms which they were merged together later in order to develop the most capable concept. In this regard our product should cover most of skiers' needs. Thus, we tried to add required features to our product to improve it from a simple sky carrier to a useful tool. These features were gathered from our investigations and probes based on users view points, our observations, and available products. Moreover, it is able to encompass further functions. As you can find later, we add some more skier's need and additional functions in finalizing phase.

3. Results

After analyzing observations, questionnaires and interviews, results of our researches categorized in three major group: (1) Primary needs, (2) Secondary needs, and (3) psychological needs.

Investigation presents that skiers prefer ski carrier in form of back pack instead of other existing products, because of more functionality, particularly during ski.

According to the results of questionnaire, using dark colors ski equipments are more common (figure 1), probably to make more contrast with snow. The results have shown that dark color which has been most chosen color by target group.

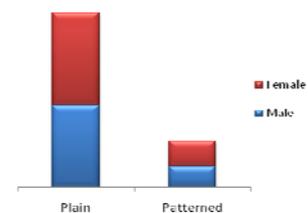
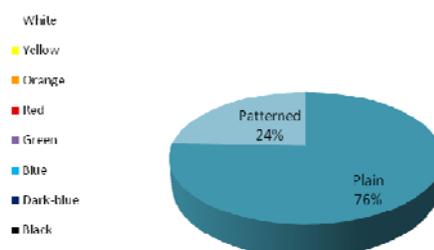
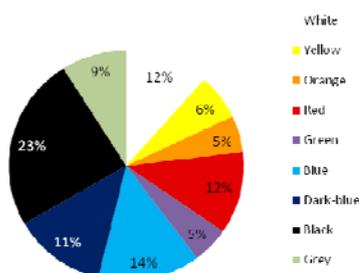


Figure 1. Samples color preference for ski suits Figure 2. and 3. Samples’ pattern taste for ski suits
As the figure 2 and 3 show, target group prefer plain suits more than patterned suits.

4. Conclusion

According to the above-mentioned investigations and analyzes, we found out our product should be considered by the users as a friend and they would want to carry that whole day long. To ensure that, the product should satisfy skiers in both view points, emotionally and functionally. The free Ideas derived from brain storming were evaluated by considering emotional and functional characteristics. Our samplers preferred a back pack to carry skis and ski boots, with distinct emotional features. According to those extracted criteria, the product developed with the following features and characteristics presented in Table 1.

Among various ideas, we chose those which meet more emotional and functional needs of skiers. Then through investigations, skiers were asked to rank them, and finally one of them had been selected to improvement.

We called it Ski-Mate because we believed that each skier needs this stylish backpack as a friend and would carry it whole day long with himself. This product has a firm structure inside it which divides weight of skis while carrying and keeps skis at the nearest possible place to the carrier which will eventually increase safety. In addition, this firm structure act as a back-protector during ski and by support backbone will protect it in ski accident.

Our market and target group prefer plain designs. Our investigation clarified a list of colors and patterns that users mostly prefer based on their background and social milieu. This information helps us to develop a ski carrier more acceptable and preferable. By aiming above mentioned subjects, we developed our ski carrier as a back-bag with too many adds-on features which have made it unique.

A real size prototype based on exact features of ski-mate was built. It had a polyethylene structure, covered with water proof covering fabric. To ensure that this product eliminates users' technical demands, we ask some skiers to use it to carry their skis. The result was satisfactory. They have found it practical and safe and wish we could mass produce it as soon as possible.

Table 1. Features and characteristics of our design

Functional Em	otional
Back protector	Be friendly with user
Used as back pack	User friendly function
Easy to use	Emotional form
Water proof	Colored by skiers preference
Ergonomic	Emotional textile pattern
Available in different size	Iconic design
Music player holder
Mobile holder
Wallet holder
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