Evaluation Report for Product

"Optrode V1" (fore-study) and "Optrode V2" (after-study)

Objectives:
How user-friendly and attractive is this product?

Contents of report

Method of investigation

AttrakDiff™ is an instrument for measuring the attractiveness of interactive products.

With the help of pairs of opposite adjectives, users (or potential users) can indicate their perception of the product. These adjective-pairs make a collation of the evaluation dimensions possible.

The following product dimensions are evaluated:

Pragmatic Quality (PQ):
- Describes the usability of a product and indicates how successfully users are in achieving their goals using the product.

- Hedonic quality - Stimulation (HQ-S):
  Mankind has an inherent need to develop and move forward. This dimension indicates to what extent the product can support those needs in terms of novel, interesting, and stimulating functions, contents, and interaction- and presentation-styles.

- Hedonic Quality - Identity (HQ-I):
  Indicates to what extent the product allows the user to identify with it.

- Attractiveness (ATT):
  Describes a global value of the product based on the quality perception.

Hedonic and pragmatic qualities are independent of one another, and contribute equally to the rating of attractiveness.

Characteristics of investigation

Product title of fore-study:	Optrode V1
Product title of after-study:	Optrode V2
Product industry:	Chemistry, Pharmaceutics, Biotechnology
Duration of fore-study:	19.09.2014 - 18.12.2014
Duration of after-study:	19.09.2014 - 18.12.2014
Project-type:	Comparison before - after, that means a product is rated twice
Variant:	The same test participants in both project parts.
Number of ratings in fore-study:	5
Number of ratings in after-study:	5

Portfolio of results

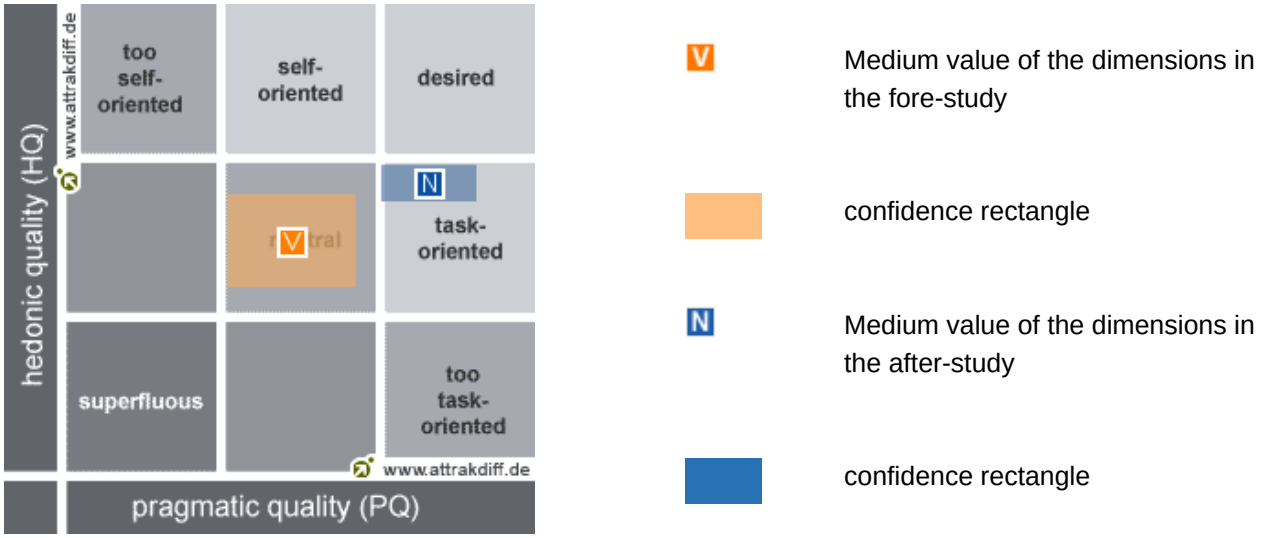

Diagram 1: Portfolio with average values of the dimensions PQ and HQ and the respective confidence rectangles of the product in the fore-study ("Optrode V1") and after-study ("Optrode V2")

In the portfolio-presentation the values of hedonic quality are represented on the vertical axis (bottom = low value). The horizontal axis represents the value of the pragmatic quality (i.e. left = a low value).

Depending on the dimensions values the product will lie in one or more "character-regions".

The bigger the confidence rectangle the less sure one can be to which region it belongs. A small confidence rectangle is an advantage because it means that the investigation results are more reliable and less coincidental.

The confidence rectangle shows, if the users are at one in their evaluation of the product.
The bigger the confidence rectangle, the more variable the evaluation ratings (more information is available in the appendix).

Interpretation for help

Project part fore-study, product "Optrode V1"

The products user interface was rated as "neutral".

Pragmatic quality is clearly the classification. The user is assisted by the product, however the value of pragmatic quality only reaches the average values.

Result: Consequently there is definite room for improvement.

In terms of hedonic quality the character classification applies positively. The user is stimulated by this product, however the hedonic value is only average.

Result: In terms of hedonic quality there is clearly room for improvement.

The confidence intervals of both dimensions are large. This could be attributed to limited sampling or

to greatly differing product ratings.

Project part after-study, product "Optrode V2"

The products user interface was rated as "practice oriented".

Pragmatic quality is clearly the classification. It is very pragmatic.

Result: Your product assists its users optimally.

In terms of hedonic quality the character classification applies positively. The user is stimulated by this product, however the hedonic value is only average.

Result: Room for improvement exists in terms of hedonic quality.

The confidence interval PQ is large. This could be attributed to limited sampling or to greatly differing product ratings.

Comparison of results of both project parts

The product has improved in comparison with the fore-study. The pragmatic quality as well as the hedonic quality are higher compared to the fore-study.

The difference in terms of pragmatic quality between the fore and after studies is statistically significant (see details in appendix).
The difference in terms of hedonic quality between the fore and after studies is statistically insignificant. It might therefore concern a chance fluctuation of judgment.

The confidence interval for pragmatic quality is smaller than in the fore-study. The test participants are now more at one in their ratings. Thus the ratings of the after-study apply with greater certainty to the product.
The confidence interval for hedonic quality is smaller compared to that of the fore-study. The test participants are now more at one in their rating. Thus the ratings of the after-study apply with greater certainty to the product.

Diagram of average values

The average values of the AttrakDiff™ dimensions for the evaluated product are plotted on the diagram.

In this presentation hedonic quality distinguishes between the aspects of stimulation and identity. Furthermore the rating of attractiveness is presented.

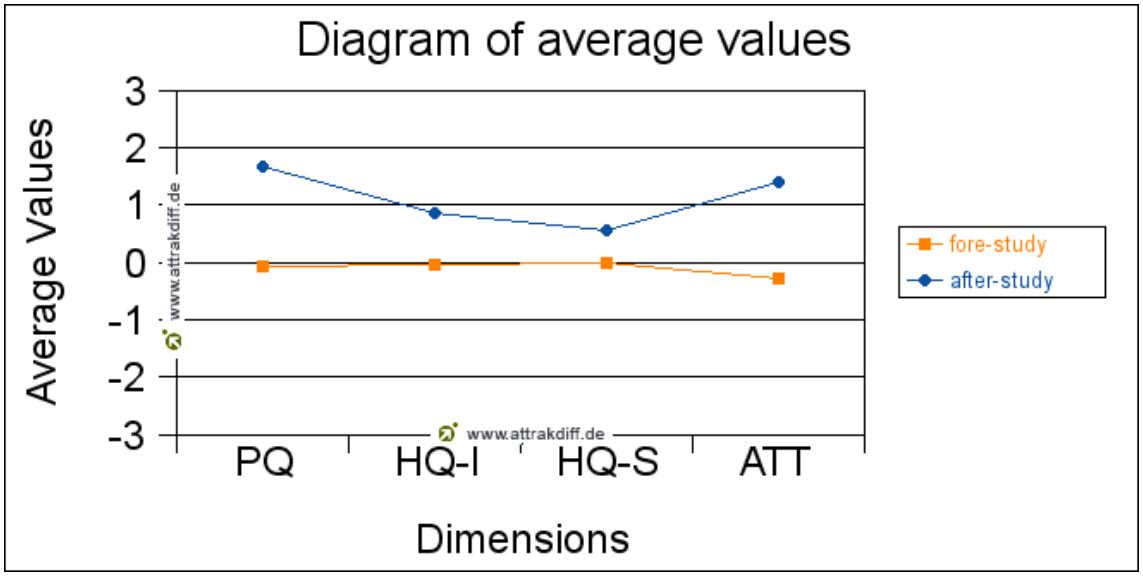

Diagram 2: Mean values of the four AttrakDiff™ dimensions for the product in the fore-study ("Optrode V1") and after-study ("Optrode V2")

Interpretation for help

Project part fore-study, product "Optrode V1"

In terms of pragmatic quality the product is located in the average region. It just about meets ordinary standards.

Result: Should you wish to assist the user you must aim at improvement.

With regard to hedonic quality – identity, the product is located in the average region. It just meets ordinary standards.

Result: Should you wish to bind the user to the product, you must aim at improvement.

With regard to hedonic quality – stimulation, the product is located in the average region. It just about meets ordinary standards.

Result: Should you wish to motivate, absorb and stimulate users, you must aim at improvement.

The product's attractiveness value is located in the average region.

Result: The overall impression of the product is moderately attractive.

Project part after-study, product "Optrode V2"

In terms of pragmatic quality the product is located in the above-average region. It assists the user and enables him/her to achieve his aims.

Result: In terms of pragmatic quality the product is classified optimal.

With regard to hedonic quality – identity, the product is located in the average region. It provides the user with identification and thus meets ordinary standards.

Result: Should you wish to bind the user more strongly to the product, you must aim at improvement.

With regard to hedonic quality – stimulation, the product is located in the average region. It meets ordinary standards.

Result: Should you wish to motivate, enthral and stimulate users even more intensely, you must aim at further improvement.

The product's attractiveness value is located in the above-average region.

Result: The overall impression of the product is very attractive.

Comparison of results of both project parts

In terms of pragmatic quality, the product has improved in comparison to that of the fore-study. This difference is statistically significant.

In terms of the identity aspect of hedonic quality, the product has improved in comparison to that of the fore-study. This difference is however statistically insignificant.

In terms of the stimulation aspect of hedonic quality, the product has improved in comparison to that of the fore-study. This difference is statistically significant.

In terms of attractiveness, the product has improved in comparison to that of the fore-study. This difference is statistically significant.

Description of word-pairs

The mean values of the word pairs are presented here. Of particular interest are the extreme values. These show which characteristics are particularly critical or particularly well-resolved.

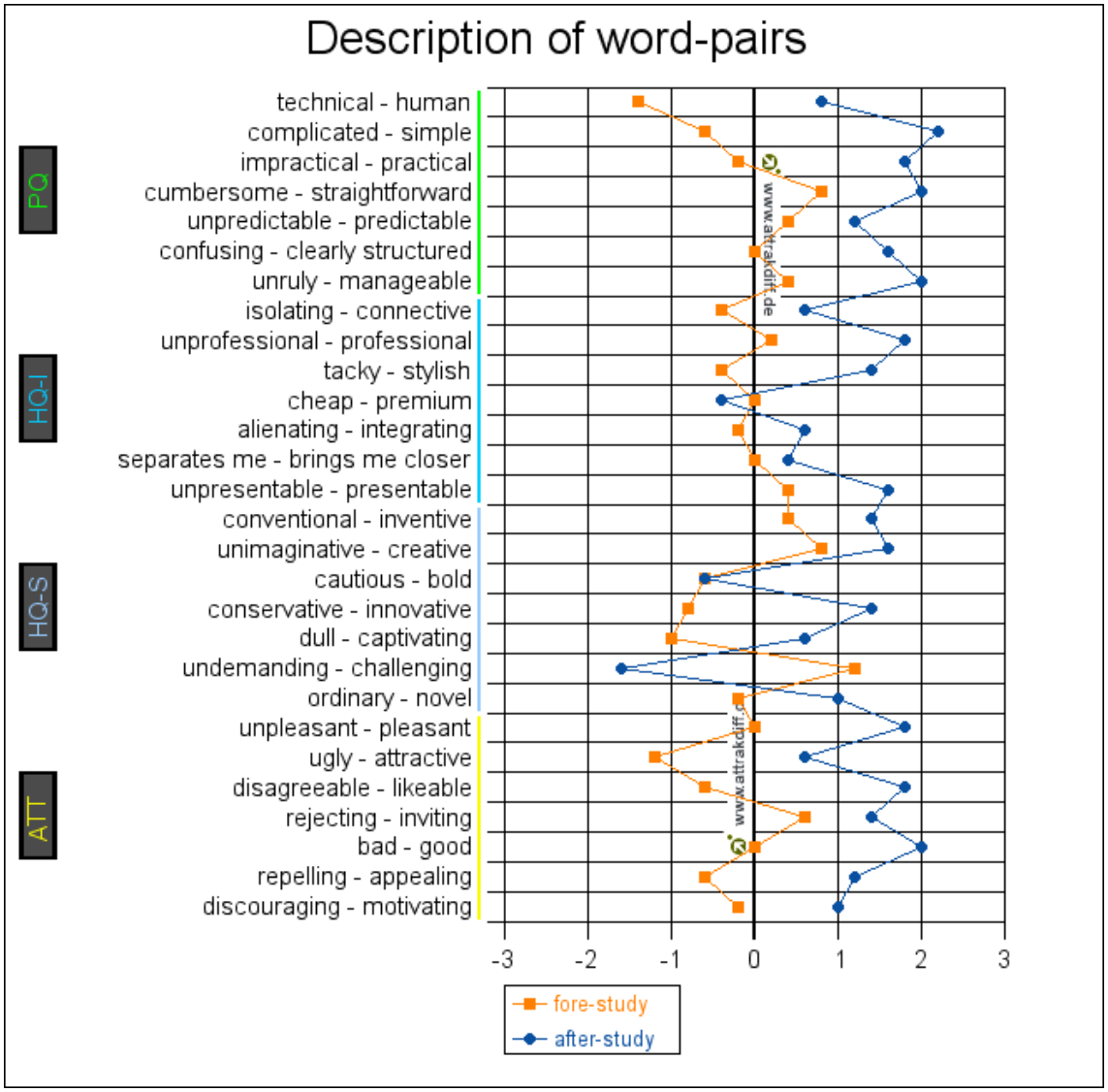

Diagram 3: Mean values of the AttrakDiff™ word pairs for the product in the fore-study ("Optrode V1") and after-study ("Optrode V2")

APPENDIX

Classification of test participants

Age
20 to 40: 5 test participants

Gender
Male: 2 test participants
Female: 3 test participants

School qualification
University: 5 test participants

Profession
PhD student : 1 test participants
PhD Student: 1 test participants
senior project scientist : 1 test participants
Lecturer: 1 test participants
Technical Officer: 1 test participants

Product experience
less than a year: 2 test participants
1 to 2 years: 1 test participants
2 to 3 years: 1 test participants
more than 3 years: 1 test participants

Confidence Intervals

The confidence intervals create a so-called confidence rectangle. As it is almost impossible to involve all users in the evaluation.

The project co-ordinator has to settle for a number of selected product users to evaluate the product. For this reason one can never be 100% sure that the outcome of the evaluation is representative of the collective users. It might be that the evaluation by the selected users differ from that of the collective users were it possible to ask them all.

The confidence interval outlines the area where the "true" values would lie were it possible to ask all the users.

The confidence rectangle suggests with what certainty the product equals the mean values of the characteristic dimensions.

Significance Tests

Significance tests make it possible to test whether the difference between 2 values can be attributed to the qualities of the product or whether the difference is the result of incidental fluctuations. E.g. If a product receives a higher pragmatic rating than another it does not necessarily mean that it is more pragmatic than the other.

Small, chance fluctuations of judgement can result in a higher value even when there is no systematic difference between the two products. In this case the difference measured is not very relevant.
T-Tests for independent random sampling to check whether there are in fact significant rating differences between the two products. The significance standard lies at 0,05.

This is interpreted as follows:
The difference in ratings is considered "significant" when one can assume with 95% certainty that there are no incidental fluctuations. A difference is considered "insignificant" when the probability of incidental fluctuation is greater than 5%.