CONCEPTUAL BRAND M@PPING - A WEB-BASED APPROACH TO COLLECT BRAND KNOWLEDGE AND ITS INTERPRETATION USING NETWORK ANALYSIS

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Abstract. To create efficient marketing strategies, it is essential to be familiar with the consumers` brand knowledge. The main objective of this paper is to present a way to collect associative networks of brands. Therefore, a web-based method called CONCEPTUAL BRAND M@PPING will be presented here. Participants are asked to map their brand knowledge in an online experiment using dimensioning nodes and the relations between these nodes. As different technical methods are used, these maps will differ from Novakian concept maps (Novak & Gowin, 1984). With the exception of their intensity, the relations between concepts are initially not qualified, but a discussion of individual and aggregate maps after the elicitation makes it possible to distinguish relationships between nodes. In addition to a qualitative interpretation of the maps an interesting way of evaluating the data is to interpret the associative network, mentioned as a conceptual brand map, using the tools of social network analysis.

1 Introduction

This paper discusses aspects of brand research, particularly the collection and interpretation of brand knowledge by means of a web-based mapping method. The focus is on the structural properties of the brand scheme, like the brand kernel and brand periphery, communication-related concepts and subgroups in the brand scheme. An aggregate map will be discussed to show an increase in value concerning information of socially-shared and non-socially-shared brand knowledge compared to that of an individual map.

A measurement of brand knowledge should take into consideration the assumption that knowledge is represented in network structures (Anderson, 1995). In contrast to other methods of brand research, mapping tools are able to measure knowledge in network structures in a direct and open-ended, qualitative way. In addition to an extended qualitative interpretation of the conceptual brand maps, a quantitative analysis seemed to be interesting (Joiner, 1998). It could be helpful to use the indices of social network-analysis to analyse the structure of a semantic brand scheme. For example by measuring the centrality of nodes, we can discover key concepts in the network. Concerning the “spreading activation” model (Collins & Loftus, 1975), it may be useful to communicate these concepts with the intention to activate other concepts in the consumers` mind (see chapter 3).

2 Measuring brand knowledge using the tool CONCEPTUAL BRAND M@PPING

CONCEPTUAL BRAND M@PPING is organized as a web experiment. After an introduction supported by example-links, the specific brand logo is given to the participant as a stimulus. Then the participant is asked to note spontaneous associated concepts in a concept list. Optionally this list is already filled with brand associations resulting from pre-tests. In this case the participant is encouraged to add other associated concepts. The concepts represent the network nodes.

Using a client-sided java-applet, the participant places ´concept-cards´ in a randomised order on the desktop and arranges them to form a network. By means of a tool-bar, the participant can easily change the configuration of the network in various ways: link concepts, weight concepts and lines, rate concepts as positive, negative or neutral associations or add and delete concepts to the network.

An important advantage of this method is the provision of detailed data, server-sided saved in a database. First, there is the configuration data describing the network, like the (weighted) Adjacency-Matrix representing the connectivity of the network, the weighting of nodes and lines and the metric distances between the concepts. Personal characteristics which are evaluated in a following online-questionnaire may help to explain the variance in individual conceptual brand maps. Finally, the program offers some non-reactive data, like log files.

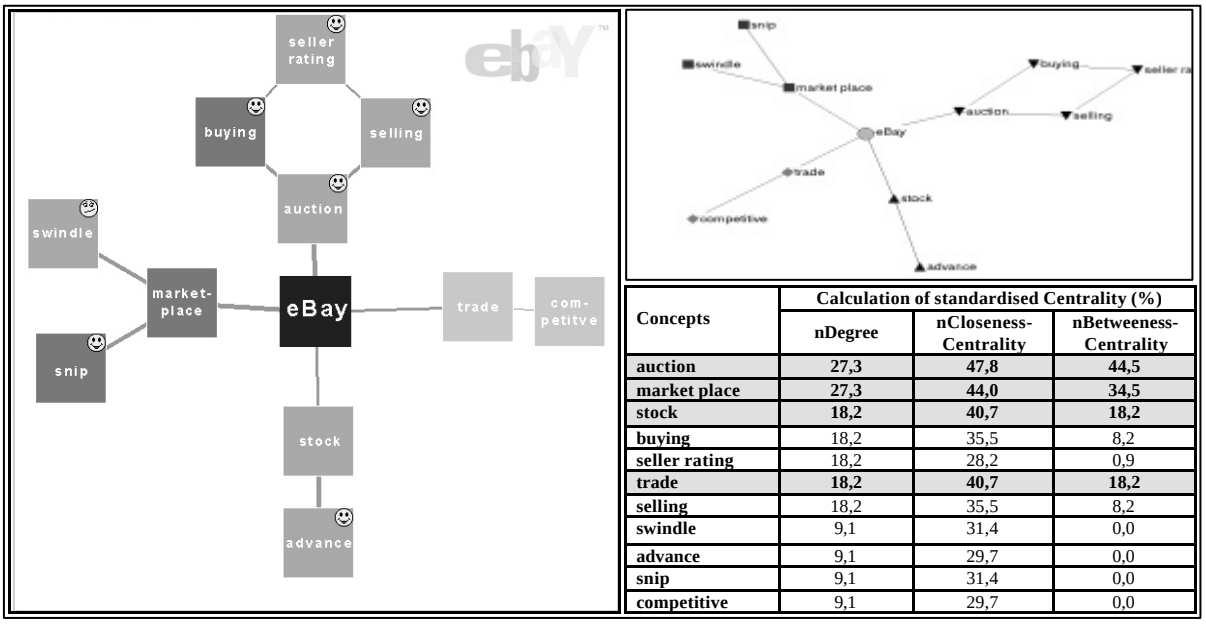
3 Analysis of conceptual brand maps using social-network-analysis methods

3.1 Preliminary remarks

This paper focuses on the quantitative interpretation of the brand knowledge using the methods of social network analysis for both individual and aggregate networks. In the study, the following indices are used for network analysis: Degree-Centrality, Betweenness-Centrality, Closeness-Centrality and Subgroups (Wasserman & Faust, 1994). A high Degree-Centrality of a concept expresses its special importance in the network. We can assume that concepts with high centrality represent the brand kernel. Probably they activate the network (Collins & Loftus, 1975). In the same way the Betweenness-Centrality is an indicator for conducting and stimulating parts of the brand scheme. Closeness-centrality indicates the level of connectivity to all other concepts in the network. Concepts with a high Closeness-Centrality are probably independent of the activation by units. Subgroups are framed by concepts which are close within the group and are well-separated from other areas of the conceptual brand map. Due to the connectivity of these concepts, it is conceivable that they will be activated together. The hypothetical character of these assumptions must be emphasized here.

The presented example deals with the brand "eBay" (Internet-Auction). German students were asked to describe their mental network of the brand online with the method Conceptual-Brand-M@pping. Theoretical network analysis is supported by the program UCINET 6 (Borgatti, Everett & Freeman, 2002).

3.2 Analysis of an individual conceptual brand map applying social network analysis methods



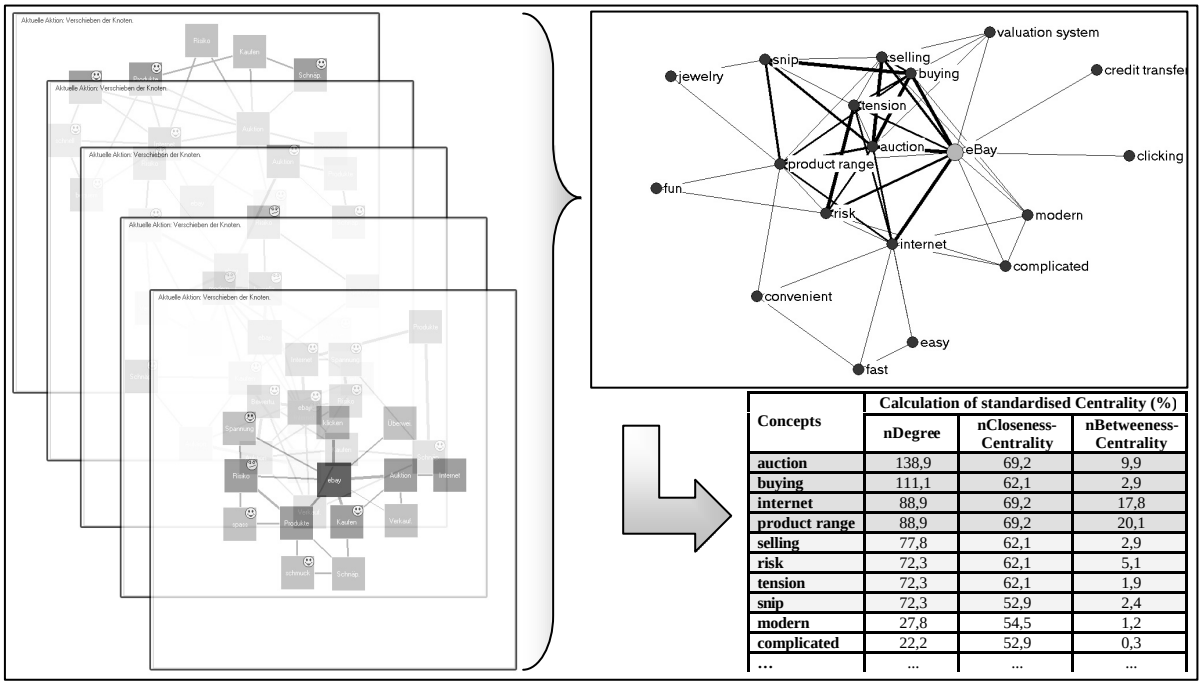
Concepts	Calculation of standardised Centrality (%)		
	nDegree	nCloseness-Centrality	nBetweeness-Centrality
auction	**27,3**	**47,8**	**44,5**
market place	**27,3**	**44,0**	**34,5**
stock	**18,2**	**40,7**	**18,2**
buying	18,2	35,5	8,2
seller rating	18,2	28,2	0,9
trade	**18,2**	**40,7**	**18,2**
selling	18,2	35,5	8,2
swindle	9,1	31,4	0,0
advance	9,1	29,7	0,0
snip	9,1	31,4	0,0
competitive	9,1	29,7	0,0

Figure 1: Individual conceptual brand map; subgroups reconstructed with UCINET; calculation of standardised centrality

Figure 1 shows an individual conceptual brand map of "eBay" generated with the CONCEPTUAL BRAND M@PPING Method. The main central concepts (auction, trade, stock, market place) are easily identified. They are directly connected and close to the "brand concept" in the middle. Further associations originate from these concepts. The interpretation can be supported by the results of the network analysis, especially in the case of Betweeness-Centrality. Another idea is to identify subgroups. The concept map in Fig. 1 clearly shows four separated sections. To determine these subgroups using network analysis, the command ´factions´ was used in UCINET with a comparable result (see top right in Fig. 1).

3.3 Analysis of an aggregate conceptual brand map

To make predictions about the socially shared knowledge of brands, particularly about the brand kernel, the individual maps must be aggregated.



Concepts	Calculation of standardised Centrality (%)		
	nDegree	nCloseness-Centrality	nBetweeness-Centrality
auction	138,9	69,2	9,9
buying	111,1	62,1	2,9
internet	88,9	69,2	17,8
product range	88,9	69,2	20,1
selling	77,8	62,1	2,9
risk	72,3	62,1	5,1
tension	72,3	62,1	1,9
snip	72,3	52,9	2,4
modern	27,8	54,5	1,2
complicated	22,2	52,9	0,3
…	...	...	...

Figure 2: Five individual networks aggregated; visualisation in UCINET; calculation of standardised centrality

In this particular case, five individual networks were aggregated (see Fig. 2). To achieve one aggregated Adjacency-Matrix, the individual Adjacency-Matrices were set up and summarized. This solution can be visualised in UCINET. The strength of the lines between nodes represents the level of agreement in the individual conceptual brand maps. To identify central concepts, a network analysis was carried out. The following concepts play an important role in the knowledge of the brand "eBay": auction, buying, internet and product range. We can assume that these concepts are key concepts of the analysed sample. Concerning the "spreading-activation model" (Collins & Loftus, 1975), these concepts may be responsible for activating other concepts in the network and represent the brand kernel.

In particular for aggregated networks it makes sense to identify possible subgroups in the network. Figure 3 shows the visualised subgroups for the aggregated example. Even if the splitting of the network is not clear-cut, we can identify a section with concepts representing characteristic features of the internet (up triangle) and another section with the typical features of ´eBay´ (squares). We may assume that a larger sample would lead to more detailed results.

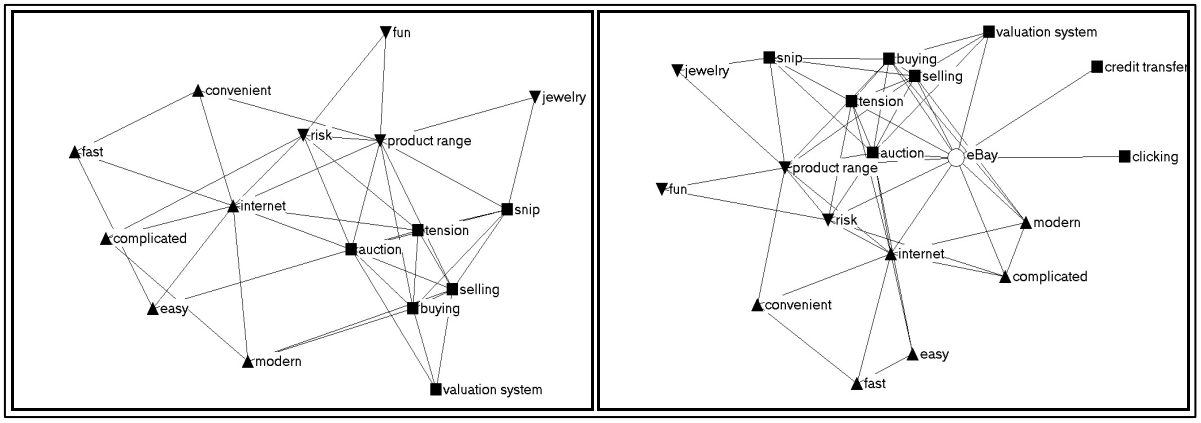


Figure 3: Subgroups of the aggregated network excluding and including the brand concept

The presented suggestions for the analysis and interpretation represent only a part of the facilities of such an analysis. Finally I want to emphasize that it is also advantageous to discuss the conceptual brand maps in a qualitative way. Because of the necessity to reduce the complexity for ´online-mapping´, the relationships

between the nodes, with weighting as the only exception, were not specified. To understand the deeper meaning of the derived networks, it may be helpful to explain the relationships between the nodes, for example, in a group discussion.

4 Summary

To evaluate brand knowledge, a browser-based mapping method was introduced. The objective was to use the advantages of mapping methods for structuring and collection knowledge. Concerning CONCEPTUAL BRAND M@PPING two main goals were to be achieved: (1) Implementation of a browser-based simplify mapping (2) Provision of extensive configuration data for a detailed analysis of conceptual brand maps.

In particular the interpretation of the structure of brand knowledge with the analytic tools of social network analysis is simplified. This approach can be useful to explain the customers` brand knowledge, i.e. central concepts which are responsible for activating the brand scheme. It is even possible to make assumptions about brand kernel and brand periphery. Nevertheless, we also have the facility and necessity to interpret the individual and aggregate networks in a qualitative way. From a methodical point of view the transfer of a mapping technique into a brand research context could be a promising approach to examine and interpret consumers` knowledge structure about brands.

5 References

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