

APPLICATION OF THE CONJOINT ANALYSIS AS A MARKETING RESEARCH TOOL FOR THE DEVELOPMENT AND CONTROL OF FUTURE ACADEMIC LIBRARY SERVICES: THE ProSeBiCA- PROJECT

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Abstract *The paper at hand presents the contents and goals of the DFG-project ProSeBiCA, which is currently conducted at the Bielefeld University in Germany. A main focus of the project is to involve the consumer perspective in operative and strategic planning of future library services and profiles. We are going to develop a comprehensive analysis and simulation framework for academic libraries that systematically enables a strategic planning of future service design on the basis of preference measurement (using Conjoint Analysis). Here, we take into account services that are already available as well as potential ones that do not exist yet. The empirically deduced statements will be maintained by consumer surveys at a wide base in German and USA libraries. These surveys will be implemented by means of an adjusted model for the measurement of user preferences.*

INTRODUCTION

The issue of the future orientation of academic library services is nowadays more up-to-date than ever. Indicators of this development are current discussions considering the enhancement of digital library services and the reorientation of the scientific publication process in terms of open access to scientific information. A new common issue, especially in Germany, is the adoption and extension of a more customer orientated point of view as the future development of German libraries should be answered not only by librarians, but also by the library users.

There are different ways to develop library service offerings, which are based upon user needs and preferences. One appropriate way is the application of practice-proven methods of marketing research and planning. The complexity of the problem and the high degree of innovation argue for the implementation and superiority of this way. The strengthened competition in the field of information services especially offered by private Internet providers is also a reason for the necessity of a systematic and scientific treatment of the problem.

Although the development of academic libraries today is based to an increasing degree on practice-proven marketing methods for measuring and

valuating of library services, these instruments are mostly confined to controlling relevant aspects like measuring of effectiveness, costs and quality. Mostly, the already existing services are subject of examination and not the new and up to now not-existing services.

The current project *ProSeBiCA* (This is an abbreviation of the German translating of "Prospective control of the services of academic libraries by means of Conjoint Analysis". The project is funded by the DFG, i.e. German Research Foundation; Deutsche Forschungsgemeinschaft) ties up to the already existing rudiments of marketing methods in libraries and pursue the aim to define a spectrum of future relevant academic library services, using the methods of Conjoint Analysis [1]. The project is based on a cooperation between the Bielefeld University Library and the Department of Economics and Business Administration at the Bielefeld University, particularly the Marketing chair (Germany). It aims at the development of a widespread analysis and simulation framework for academic libraries serving as a guideline for other libraries. The usage of Conjoint Analysis as an approved marketing research method for new product development makes the project forward-looking and confines it from other methods for measuring and valuating of academic library services. Subject of examination are both already existing services and up to now not-existing, new services. However the main focus concentrates on new and innovative services.

Against the background of shrinking budgets and rising costs the development of the "right" products becomes increasingly important. The current process of restructuring and changes in the public sector in Germany signalises here a clear call for action. In addition, this process offers the chance to go for new and, so far, perhaps rather unusual ways. The aim of the ProSeBiCA-project is to deliver appropriate answers for designing the "right" range of services in an academic library. The exploration of the new ideas for general and especially digital library services will be maintained by online-surveys at the University Libraries in Bielefeld, Cottbus (Germany) and at the Johns Hopkins University, Baltimore (USA). Subsequently a brief review of the individual steps of the project should be given.

GENERATION OF NEW IDEAS FOR LIBRARY SERVICES

The first step in order to develop new products and services is the scanning of the relevant environment and the generation of plenty of possible ideas for desired modernisations. This step is to insure that no relevant aspects are neglected. That's why this stage is very important for the success of a project and should be processed with adequate dedication.

First of all we should perceive innovation possibilities using methods like environmental scanning [2], which includes the systematic acquisition, analysis and adoption of environment information for the organisation. Otherwise we can use perceptual maps, which visualise the common situation regarding selected services from a target group point of view. An innovation can be a slight variation

of an existing product (e.g. the extension of the opening hours), an eminent modification (e.g. the implementation of a scientific search engine) or a revolutionary invention in the treated area (e.g. the development of the internet). The best sources for generating new library service ideas are the users of these services, the own staff and other libraries.

Within the ProSeBiCA-project different sources and techniques were used to generate new ideas. A comprehensive analysis of secondary data, relevant literature and information databases on the internet about innovative new services (for libraries as well as for other organizations) build the basis of the examination. In addition business administration students generated new library services within a project oriented course at the Chair of Business Administration and Marketing at the Bielefeld University. Furthermore a series of workshops with scientific staff and librarians were held, applying idea generation methods like brain storming. These were conducted at the Bielefeld University, the Brandenburg University of Technology Cottbus and the Kansas State University. The result is a list with more than 250 different ideas for new services. They may represent a small detail of an existing service on one hand, as well as complex new service area on the other hand. Some of them are easy to implement, whereas others look wide ahead. Independent from the level of complexity we subsequently present some examples for new ideas for scientific library services:

- translated basic-info packages for foreign library users
- unique user-card (for all electronic systems available to the members of the university)
- home delivery service for books
- media workstations in the library
- virtual "ask-a-librarian"- agents on the web
- information about the loan account via SMS on the mobile phone
- online auctions with used old books from students
- water dispensers within the library
- carrels with extended technical communication capabilities (video conference)
- loan of technical equipment like notebooks or memory sticks
- W-LAN-accessibility
- video-mediated book-view
- online self-administration for user accounts
- 3D multi-modal search engine
- support for voice-enabled-browsing
- webcam communication with librarians
- open access platform for scientific publishing etc.

VERIFICATION OF NEW SERVICE IDEAS

The next step of the development of new service offerings is the testing of the new service ideas concerning their acceptance by the library users. There are different methods to inquire the opinion of a target group concerning an issue, but a comprehensive type of survey is the best way to detect the customer preferences. In the marketing research one special method has achieved a leading position and is preferred by enterprises in order to develop new products or services [3-4]. This method is Conjoint Analysis, which is based on the joint rating of more than one characteristic of a product (see Figure 1).

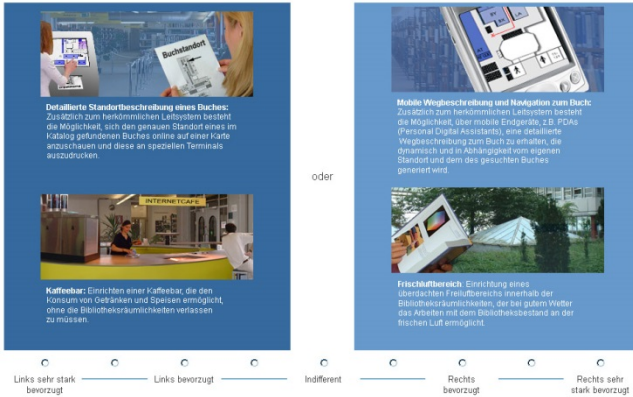


Fig. 1: Paired comparison of two products with two characteristics

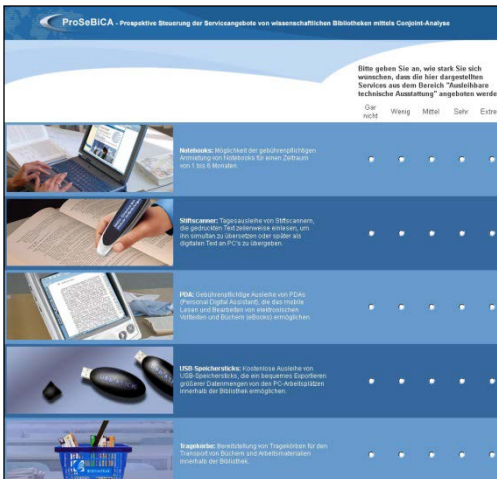


Fig. 2: Screenshot of the ACA based online survey

Librarians in the United States detected the Conjoint Analysis for their purposes a long time ago. Theoretical and empirical papers dealing with Conjoint Analysis for library Services were published in the 1980s [5-7]. These and later studies handle only with one small area of the whole range of possible library services, that is to say mostly with the reference services and their possible

characteristics [8-9]. The achieved samples at that time contained about 100 students and library users.

Within the ProSeBiCA-project we try to value the complete range of services in terms of new developments, using an adjusted version of the Conjoint Analysis. The most commonly used commercial software for computer based analysis is deployed for selecting the data. The data pool is collected within separate online surveys at the Universities of Bielefeld and Cottbus and in the USA. This approach should guarantee a high expressiveness of the data. In these online-surveys the services are presented with text and image or animation (see Figure 2). The user assesses which advantage the described services have got for him personally and makes his choice.

To shorten the time needed for filling out the forms the number of questions was reduced by dividing the whole range of possible library services into four different main categories:

- Provision of media and information (for example: collections and catalogues, supporting enquiry, lending, pick-up and delivery of media)
- Supporting learning and working in the library (for example: orientation within the library, working places and carrels, interior design)
- Communication with the customers and between the customers (for example: announcements, training and tutorials, ask-a-librarian, help and information)
- Extra services (for example: handicapped accessibility, entertainment and activities, convenience)

The participant will coincidentally be asked about services in only one of these four categories. Therefore the total amount of time for completing the online-questioning is only between 20 and 30 minutes.

In order to motivate the users to join the survey, which is a crucial factor for its success, several different activities were initiated in parallel. On the intrinsic level of motivation, we wanted the participant to get emotionally connected to the questioned issue. Therefore the survey begins with a short animated introduction sequence, which shows the participant, that his personal support and his opinion is needed for developing the *library of the future*. Furthermore we try to support the extrinsic level of motivation by the offering of (sponsored) high quality prizes, which can be won by joining this survey. To avoid that the respondents leave the online survey without completing all questions, the raffle is positioned at the end of the questionnaire and not at the beginning. This way the respondents have to answer all questions before they are able to get to the page, where the form for the raffle is implemented. In addition to this virtual campaign students are animated proactively by our staff, who addresses the library users personally (face-to-face) and by poster and flyer publications.

Another, until today, rather unusual and interesting aspect of this conjoint based study is the already mentioned usage of images and animation in addition to text for describing the different service ideas. Usually pure text is the most

implemented form of stimulus presentation. The images in this survey have the function to visualise the text. This approach is particularly adequate, because most of the presented services do not exist until now. Therefore the pictures do not only help to explain the text, but also help to *imagine* the future usage and possible benefit of the described services in the context of the familiar environment of their own library (through photomontage). Furthermore, the described use of images follows the assumption that the cognitive load of picture processing is smaller than the cognitive expenditure while processing text media, which can have an indirect or direct influence on motivation, concentration, comprehension and decision-making of the respondent and therefore on the goodness of the results. New empirical examinations argue clearly for a higher validity of conjoint surveys based on picture visualisation [10].

APPLICATION AREAS FOR THE PROJECT RESULTS

The project is currently (November 2004) situated at the described stage of data collecting at the Bielefeld University. A follow-up Choice-Based Conjoint Analysis (CBC, A software package from Sawtooth Software is available for the appliance of Choice-Based Conjoint-Analysis: <http://www.sawtoothsoftware.com/cbc.shtml>) survey based on the results of this first Adaptive Conjoint Analysis (ACA, Adaptive Conjoint Analysis is also a product of Sawtooth Software and takes the second placed after CBC accounting the number of implementations concerning the available Conjoint Analysis software: <http://www.sawtoothsoftware.com/aca.shtml>) examination will be executed in the beginning of 2005. Parallel surveys at the Brandenburg University of Technology Cottbus (Germany) and at the Johns Hopkins University (USA) will complete the study until March 2006.

The analysis of the locally collected data-packages will show the services with a high benefit for the users of the considered library.

Comparing the data of the different surveys, the deduction of universally valid statements for the libraries in Germany (and their comparison with the USA) will be possible. This way other libraries in Germany can benefit from the results of the project by using them as an orientation for their own strategic planning.

As another result of the project, a guideline (including the rating and evaluation methods) and a database (including the list of ideas for new services) for other libraries will be provided in order to enable further implementations of this analysis method on a global basis. Both, the searchable and categorized idea database as well as the guideline for executing conjoint based analysis will be published online and for free usage.

To sum up, libraries can benefit from the achievements of this study by using the empirical results as basis for their own strategic service planning, or they can follow the published guideline and execute a conjoint based study on their own. In either case (usage of general statements or execution of conjoint

study) the results (services with a high benefit) have to be checked concerning the own strategic planning, the organisational feasibility and the availability of personal, technical or financial resources. For this purpose further marketing techniques (e.g. the *Quality Function Deployment*) [11] should be implemented.

CONCLUSION

Although the project is still at the beginning stage, our practical experiences until now argue clearly for the fact that the conjoint analysis seems to be an adequate tool for measuring the acceptance of library services, as well as it proved its superiority as a marketing tool in the industry and product oriented sector. Nevertheless a clear difference can be seen between the benefit measuring of products and services. Products often can be categorised in a better way and can be described on a lower level of complexity. Products (e.g. laptops) have different material and/or technical properties, that can be divided clearly from each other (MHz, RAM, weight, extra devices etc.), whereas service categories need much more complex descriptions. The described usage of images can help to explain these complex ideas as an addition to the textual presentation.

REFERENCES

1. Decker (R) and Hermelbracht (A). Gestaltung zukünftiger Bibliotheksangebote mit Methoden der Marketingforschung - Ein neues DFG-Projekt des Lehrstuhls für BWL und Marketing und der Bibliothek der Universität Bielefeld, *Bibliotheksdienst*. 38 (5). 2004: 611 -626. http://www.zlb.de/aktivitaeten/bd_neu/heftinhalte/Betriebsorganisation0504.pdf
2. Aguilar (FJ). Scanning the business environment. New York: Macmillan. 1967
3. Wittink (D R) and Cattin (P). Commercial use of conjoint analysis: An update. *Journal of Marketing*. 53(3). 1989:91 –96.
4. Wittink (D R), Vriens (M) and Burhenne (W). Commercial use of conjoint analysis in Europe : Results and critical reflections. *International Journal of Research in Marketing*. 11 (1). 1994: 41-52.
5. Halperin (M) and Strazdon (M). Measuring students' preferences for reference service: A conjoint analysis. *Library Quarterly*. 50(2). 1980: 208 -224.
6. Halperin (M). Determining user preferences for information services. *Drexel Library Quarterly*. 17(2). 1981: 88-98.
7. Ramsing (K) and Wish (W R). What do library users want? A conjoint measurement technique may yield the answer, *Information Processing & Management*. 18 (5). 1982: 237-242.
8. Crawford (G A). A conjoint analysis of reference services in academic libraries. *College & Research Libraries*. 55(3). 1994: 257 – 267.

9. Joseph (V) and Binwal (J C). Conjoint analysis: Technique for assessing customer's preferences on library products and services. *Journal of Library Information Science*. 19(2). 1994: 75 – 85.
10. Bruschi (M) and Baier (D). Multimedia stimulus presentation methods for conjoint studies in marketing research. In, Schader (M) et al., Eds. *Between data science and applied data analysis*. Berlin: Springer. 2003: 530 – 537.
11. Call (G). *Entstehung und Markteinführung von Produktneuheiten*, Gabler. Wiesbaden. 1997