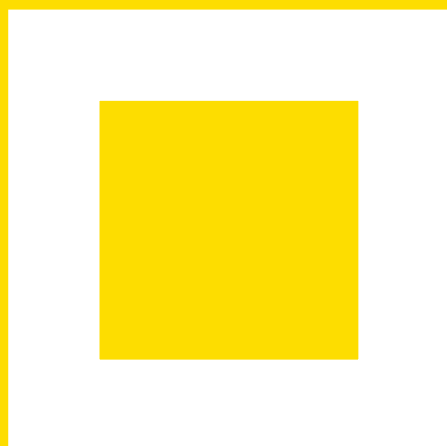


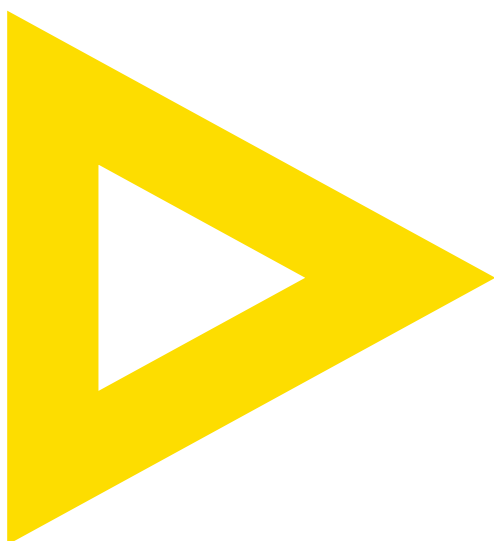


**Librarians
as designers**

**Case studies on
the improvement
of library services**



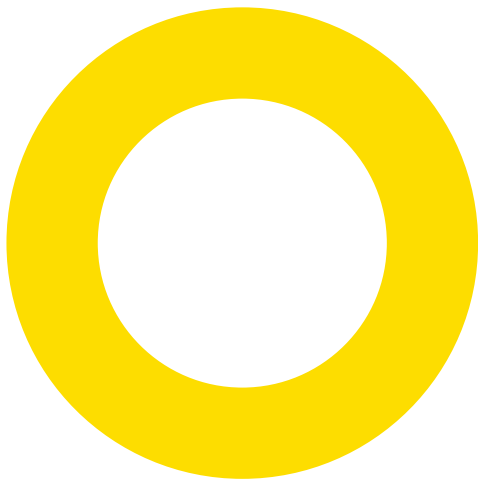
**Pavla Minaříková
Ladislava Zbiejczuk Suchá**



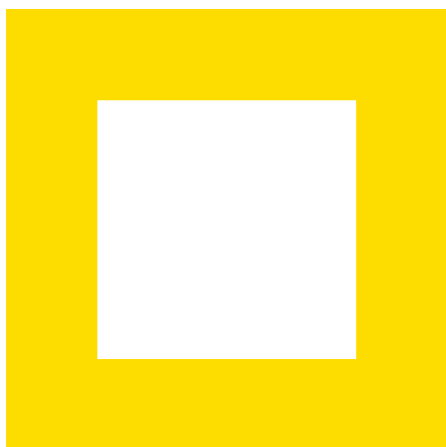


**Librarians
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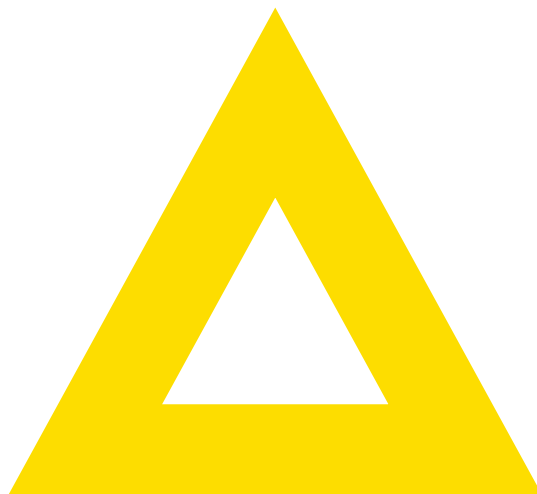
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**Case studies on
the improvement
of library services**



**Librarians
as designers**



**Pavla Minaříková, Ladislava
Zbieczuk Suchá (editors), Alma
Leora Culén, Jan Delong, Andrea
Gasparini, Roman Novotný**

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Table of contents

- 6** **Foreword and Acknowledgments**

- 11** **Designers of Library Services**

- 23** **From questionnaire to
a group study space**
Central Library of the MU Faculty of Arts
- 35** **A Journey to a New Library Website**
The Central Library of CTU in Prague
- 43** **The Knihovny.cz portal will serve users**
Municipal Library of Prague
- 51** **They are still at the beginning of their service
design journey at the Třinec Library**
Třinec Library
- 61** **Libdesign project and 35 methods
for better services**
Division of Information and Library Studies

- 73** **Design Thinking Processes: Card
Methodologies for Non-Designers**

Foreword and Acknowledgments

This small book is a result of our desire to show how service design works in selected libraries by means of case studies. It is certainly not an overview of everything that is going on in the field of design thinking in Czech libraries. The aim of the examples of use, which are described in this book, is to serve as a source of inspiration and encouragement to those who think about the needs of users in their own libraries.

The text would not exist were not for the help of librarians, who participated in the research and implementation of various innovations and who agreed to share their experience in fairly extensive interviews. We would like to say thank you to everyone for the provided interviews, consultations, and thorough comments on the texts.

The book, however, does not consist of case studies only. The introductory chapter introduces wider context of design thinking and service design. It presents our angle of looking at the case studies. We give the game away in the fifth case study, which describes the preparations behind this book and the compilation of *35 Methods for Improvement of Services*. It is followed by the chapter dealing with the design methods for non-designers, which describes the experience of our colleagues from the University of Oslo, with whom we could cooperate thanks to the support from EEA and Norway Grants.

Přejeme hodně spokojených uživatelů.

On behalf of team Libdesign
Pavla Minaříková





INTRODUCTION

Author: Ladislava Zbiejczuk Suchá

Designers of Library Services

Designers of various services and products use a specific cognitive process that is said to be characteristic for them, which has been called design thinking (Visser 2006). Design thinking has become increasingly better known since the publication of *Design Thinking* by Peter Rowe (1987) and in the beginning of 1990s, when it was adopted as a methodology for the innovation in education on Stanford University (Faste 1993, 1994). Institute of Design at Stanford (the d.school) is still the main promoter of design thinking in the academia. The agency called IDEO and its projects (e.g. Design Kit, Design Thinking for Libraries, Design Thinking for Educators) are, however, the main reasons why the public became better aware of the term.

In the last couple of years, design thinking has become a methodology used for introducing new products and services, or innovations of the old ones, in a number of fields including medicine, economy, or environmental sciences. It has also established itself in the public services — it helped to improve the public employment service, to reduce the aggression of patients on the emergency, or to digitalisation of state administration (Šmehlík 2014). There is also a great potential for the use of design thinking in the libraries. More and more often, we observe the beginnings of the use of design thinking in Czech libraries. Up to this point, we missed specific examples of its good practical use. These examples are what we would like to highlight in the following chapters of this book. Before we do that, let us take a look at the very definition of the design process and its methods together with a small inspiration that we drew from Norway.

CONVERGENT AND DIVERGENT THINKING

When someone says the word “design”, many people will only imagine the visual aspect of a product or service. It is however only a fraction of the actual meaning of “design” (Rawsthorn 2013). Design is actually a process which combines the phases of cognition, analysis, creativity, planning, implementation, and testing. Its strength lies in combining two different types of cognitive processes, which are called convergent and divergent thinking. Divergence is characteristic for innovators and the creative process, which can give rise to many ideas in a short time.

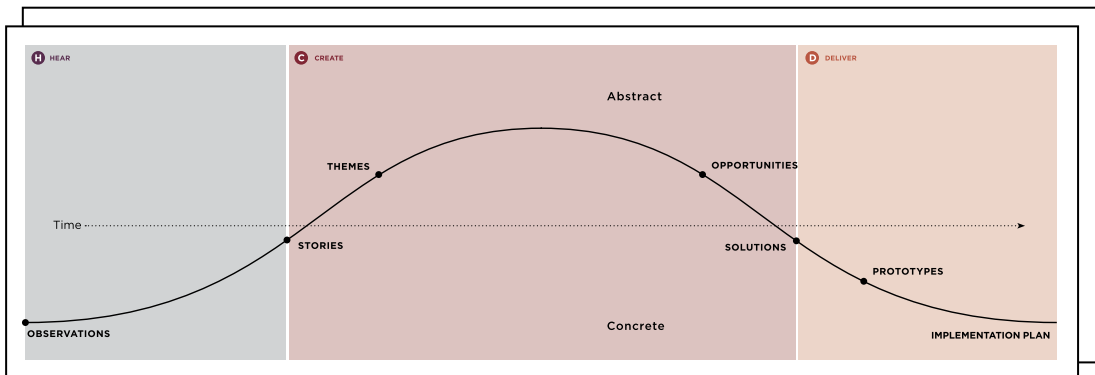


Figure 1 Design process according to IDEO

Divergence is also a response to the segmentation of the market and demands that differ with various groups of users. Its opposite is convergence. *Convergent* thinking denotes a process that leads to the best possible solution; it focuses on good understanding of a specific issue rather than lots of generated topics. Design thinking consists of both divergent and convergent thinking — it supports the creative phase and provides a structured approach for systematization of the ideas (Fisher 2015).

There is a number of methodologies for integration of the design thinking into the process of innovation. *HCD* — *user-centered design* created by IDEO is among the most famous ones. It describes the design process in three phases: hear, create, and deliver (HCD 2013).

Design is, nonetheless, also a cyclical and iterative process. It means that a designer tackles a problem by repeating the individual steps, where repetition of each cycle provides a better result than the previous one. The Libdesign team has created a description of the design process fitted for the libraries, which stresses the phases of exploring, analysis, design, and testing, which follow one another.

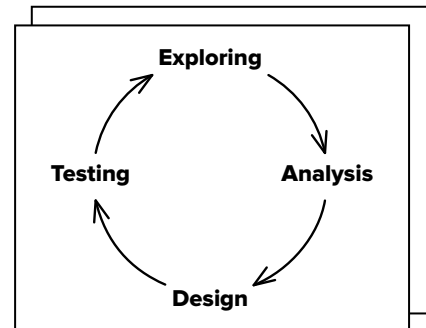


Figure 2 Design process according to Libdesign

DESIGN PROCESS AS A COOKBOOK OF INNOVATIONS

The combination of divergent and convergent thinking is not the only reason why design process became so popular framework for the implementation of innovations. A huge part was definitely played by designers' tendency to use various methods, which are supported by these forms of thinking. The tendency was also to create minute description of those methods. It was the only way for the design process to become a universal cookbook used for designing and improvement of services and

Exploring	Analysis	Design	Testing
1 Desk Research	15 Service Blueprint	22 Innovation Generator	32 User Testing
2 Questionnaires	16 Stakeholder Mapping	23 Business Model Canvas	33 Net Promoter Score
3 Poll	17 Personas	24 Customer Journey Mapping	34 A/B Testing
4 Observation	18 Empathy Mapping	25 3D Models	35 Exit Interview / Exit Survey
5 Shadowing	19 SWOT Analysis	26 Storyboard	
6 Mystery Shopping	20 Thinking Hats	27 Card Sorting	
7 User Diaries	21 Value Proposition Canvas	28 Wireframe and Mock-up	
8 In-Depth Interview		29 Landing Page	
9 Contextual Interview		30 Design Studio	
10 Focus Group		31 How Might We?	
11 World Café			
12 Graffiti Walls			
13 I Wish This Was...			
14 Brainstorming			

Figure 3 Selected 35 methods for the improvement of library services (3rd Revision of the Libdesign Card Set)

products in a diverse environment and many fields. It is important to note that these methods can work everywhere — from shops to public services.

The designers, who want to start with improvement of library services, definitely do not necessarily have to be familiar with all the existing methods. It is, however, good to know the most common ones in a given context.

DESIGN OF LIBRARY SERVICES

Alice Rawthorn writes in her book called *Hello World* that when we hear the word “designer”, most of us imagine a design hero (and only rarely a heroine). We would not probably even think of a librarian. This notion is wrong, since the reality is actually not that clear-cut — it leaves out the fact that our world consists of a number of (often very functional) products and services created by de facto anonymous designers and design teams.

Everyone who plans or realizes the process of change we call “design” can say that he or she is a designer; designer does not have to be a graduate of a school of design or be paid for designing.

It is an opening of not only the profession, but gradually also an opening of the design process.

*— Alice Rawthorn, *Hello World* (p. 36 and 50)*

Designers can also be found in libraries. The good ones, either intuitively or after previous study, use the design process in such a way that it is beneficial primarily for the users. The community of librarians, who are actively engaged in the service design, takes shape gradually. The guide called Design Thinking in Libraries highlighted this topic by providing examples of designers' work in libraries across the world — in Chicago, Aarhus, Bucharest, Nepal, or Jamaica. Design thinking and user experience in libraries gradually becomes a topic of a number of conferences — e.g. Next Library¹, UXLib², or Libdesign³ as a representative of the Czech ones.

1 www.nextlibrary.net

2 uxlib.org

3 libdesign.cz/konference

WHAT CAN WE LEARN ABOUT DESIGN THINKING IN LIBRARIES IN NORWAY?

Thanks to the support from the Norway Grants, the Libdesign team had an opportunity to learn something about the ways of using design methods and design process in the Norwegian Libraries and at the University of Oslo. We were able to closely observe the whole process in use as well as to experience the results for ourselves. We have selected a few moments which we consider very inspiring.

The involvement of students in designing of innovations in libraries

The findings of a team from the Department of Computer Science at the University of Oslo showed that librarians in academic libraries focus on the library space and traditional library services, such as organizing of courses in the library. On the other hand, both researchers and students require almost exclusively electronic services related to the study of professional literature or to other aspects of their studies and work (Culén, Gasparini 2014). This is why users must take part in the process of designing of new services.

Design workshops at the University of Oslo, which were organized several times in 2014, employed customer journey mapping method that actually showed that users' idea of an ideal journey through library differs from the librarians' idea of an ideal journey. The designs proposed by the library staff included those that would improve the library space or personal communication with clients, but the students and researchers proposed more radical changes, other preferred channels of communication with the library as well as new online services inspired by, for example, services provided by Amazon. The innovations which accrued from design workshops may undergo a laboratory testing in HCI Lab (also often called makerspace).

Openness vs. structure of the design process

It is a characteristic of the design process to use various research, analytical, and design methods. Almost every agency that works on the implementation



Figure 4 Prototype by students of University of Oslo's HCI course

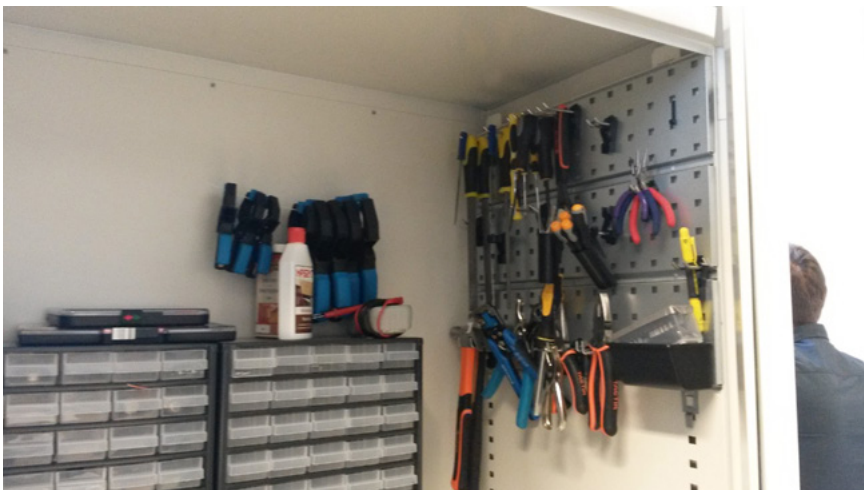


Figure 5 Makerspace at the University of Oslo

of innovations created its own set of design methods (IDEO 2013, Luma Institute 2012); the methods suitable for the design process are described in a number of books (we recommend Stickdorn and Schneider, 2011 or Kumar, 2013). The question is: To what extent should the design process be controlled by the methods?

Thanks to the support from Norway Grants, we and our colleagues from the Division of Information of Library Studies could compare the methodologies for the management of workshops, which we use in innovative projects for libraries, with the methodologies used at the University of Oslo. We have focuses on the influence of the degree of openness on the outputs of design workshops. We organized four workshops — one with a completely open structure (without



Figure 6 Design Workshop



Figure 7 Contextual cards illustrating important touchpoints in the library

predetermined methods or practices), two semi-structured workshops, and one workshop with a fixed structure. It was characterized by a detailed breakdown of predetermined methods (selected from the Libdesign set), premade templates for the completion of the output of individual methods, and strictly set roles of participants and facilitators of the workshop. It probably does not come as a surprise that the semi-structured workshops produced the best result in terms of the number of ideas for innovations and their quality (Culén, Gasparini, Minaříková, Novotný, Pandey, Zbiejczuk Suchá 2016).

Tab sets designed to fit the individual projects

Universal card sets might be too abstract to be used in libraries and they do not necessarily reflect the current practices of a particular organization. Even though they could be a positive influence in the early days of a project, they are not sufficient as the only tool that would support sustainable innovations (Pandey 2015). The idea of cards created for specific institutions or innovative workshop seemed very interesting to us. Such a tab set was created, for example, in Norway to be used in innovative workshops for a library (Culén, Gasparini 2014) or for the planning of public transport (Culén, van der Velden 2015).

DESIGN THINKING IN CZECH LIBRARIES

The tradition and culture of a participatory design is undoubtedly better ingrained in the Nordic countries than in the Czech Republic. Adopting selected elements of good practical use can, however, be an inspiration to Czech libraries and easy to do — be it involvement of users in design workshops, openness in the design process, or creating of contextually specific aids for the design process. Indeed, this book shows that Czech libraries are successful with finding their own way to designing services with the participation of users, which is why the participation can be bilateral.

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Consultation: Tereza Schwarzová Matýsová, Jiří Žgáníč Šprdlík

From questionnaire to a group study space

Central Library of the MU Faculty of Arts

Masaryk University's Faculty of Arts is the biggest faculty in the Czech Republic, yet, until recently, it did not have any space dedicated for meetings and refreshments. The students often spent their free time in the library, which also could not provide such a space. The MU FA Central Library had long sensed what the users missed. They, however, lacked compelling arguments, which is why the librarians decided to map users' needs in detail. They employed a two-round questionnaire investigation. After several months of analyzing the data and designing of the possible solutions, they created a basement space for students' use. The result is a cozy environment for group study with a shared kitchen, which the students commonly use and praise not only on a spontaneously created Graffiti Wall.

Methods used:

▶ Questionnaires ▶ Polls ▶ I Wish This Was... ▶ Graffiti Wall

Why should one choose a questionnaire?

A questionnaire is an ideal method when you want to obtain representative data about users' satisfaction. The one advantage of the questionnaire is that you can address a large number of respondents at the same time with relatively low expenses. The feedback can be collected fairly quickly, but the careful preparation of the questionnaire and evaluation of the answers will be more time-consuming.

IT STARTED WITH A QUESTIONNAIRE

In the fall of 2014, the Faculty of Arts' management needed to find out how satisfied library users are with the services of the library. The team of librarians perceived this task as a great opportunity to refine their ideas about users' problems as well as an opportunity to explore new ways of increasing users' satisfaction. That is why they designed and prepared a questionnaire investigation.

Given the nature of the task, it was necessary to collect as many answers as possible. The library researchers have therefore chosen census — asking all students at the faculty via bulk e-mail sent by the director of the library — as means of collecting the responses.

Formulation of questions in the questionnaire

When preparing the questionnaire, its authors have decided to start with the questions included in the questionnaire that was used 7 years earlier. This allowed them to compare the results of both investigations. The original questionnaire was, however, very extensive. Since the higher amount of time needed for a completion of any questionnaire significantly decreases the number of collected responses, the librarians have decided to simplify it. The result was an online form with nine closed-ended and just one open-ended questions. The closed-ended questions asked about the already existing services. The open-ended question gave space for a proposal of possible changes. These were then developed in the second round of investigation.

Areas of questions covered in the questionnaire — i.e. *research questions* — were the following:

- ▶ Are the students using the library?
 - ▶ If yes, then why?
 - ▶ If no, then why?
- ▶ Can the students find the literature needed for their studies easily?
- ▶ Are the students familiar with the services of the library (courses and lectures it organizes)?
- ▶ How do the students evaluate other library services (employees' positive attitude when tackling problems, information materials, or website)?

The research questions had to be reformulated into questions to be used in the questionnaire itself.

Before sending the bulk e-mail to all library users, the researchers tested it in a small pilot in order to ensure that the questions are clearly formulated. The library employees have continually consulted the questions with their colleagues from the Division of Information and Library Studies at the MU FA. After they successfully completed the pilot, they could go ahead and start collecting the data.

How to formulate the questions in a questionnaire?

Questions in a questionnaire have to be formulated clearly, they cannot contain complex formulations, and the use of foreign words and terms must be avoided. Clearly formulated question asks about one thing only. The example of an ambiguous question might be Can you find the literature and electronic resources relevant to your field of study that are available in the library? — what if I can find the literature, but I have no idea about the electronic resources, or vice versa? These options might be taken into account in the answers, but it is better to ask about each area separately. Formulation of the questions in a simple language ensures that the users are spared of wondering about what the question actually means; they can solely focus on their answers.

MU FA QUESTIONNAIRE

How often do you use the FA MU Central Library in the course of a semester?

- daily hardly ever / several times per semester
 several times a week not at all
 several times a month

I go to the library in order to:

- borrow books browse the Web other: _____
 study print, copy, scan
 write papers spend my free time

In the library, can you find all the literature necessary for your studies?

- I can find almost everything I need I can hardly find any literature other: _____
 I can find only the basic literature of the field I am not looking for the literature here

I use electronic information resources available at ezdroje.muni.cz:

- regularly I cannot work with them I do not know about them
 hardly ever FA does not have access to the databases I need other: _____
 I have not needed them yet

Do you know that the library organizes courses and lectures? A Date with the Library, Information education courses, courses for PhD students (knihovna.phil.muni.cz/kurzy)

- yes, I have attended a course yes, but I am not interested other: _____
 yes, I do plan to attend a course I do not know about them

Is the library staff willing to help you with the issues you ask them about?

- very willing 2 3 4 completely unwilling
1 5

Comment: _____

Please, grade the professionalism and expertise of the library staff.

- very satisfactory 2 3 4 completely unsatisfactory
1 5

Comment: _____

How do you rate the information materials? Do they help you to work with the library services? Poprvé v knihovně, informační letáky atd.

- very satisfactory 2 3 4 completely unsatisfactory
1 5

Comment: _____

When looking for the information on the website (<http://knihovna.phil.muni.cz>):

- I always find what I need I did not manage to find the information I was looking for
 the website is disorganized, it takes me a lot of time to find the information I need I have never seen the website
 other: _____

Please, tell us if you have any other suggestions, or comments, ...

Choosing a suitable tool for the collection of responses

The research team has chosen Google Forms for creating the questionnaire. It is one of the most accessible and frequently used tools for questionnaires and polls. It has several advantages: it is free of charge regardless of the number of the questions asked and the number of answers collected, while the formulation of the questions and their evaluation can be easily conducted in a team. Data can be downloaded as a table or as .csv data file. The current version also includes basic tools for data analysis, visualized overview of answers, and an increasing number of personalization options — the questionnaire can follow the visual style of the library and, for example, have its logo in the header.

The bulk e-mail allowed the team to reach out to approximately 10 thousands of potential library users (the number of Faculty of Arts' students at the time). Within five days (14–19 November 2014), they collected 1,635 responses (roughly 16% of the potential respondents). Even though the promotion and distribution of the questionnaire was led through several channels, the number of questionnaires completed in the individual days showed that the largest number of respondents reacted to the bulk e-mail.

Analysis of the responses and processing of the findings

A team of librarians was processing the answers for a week. The evaluation of closed-ended questions, which are easily quantifiable, is relatively easy, the problem is in the evaluation of answers to open-ended questions. The comments users wrote in the dedicated spaces provided the librarians with a lot of material to evaluate and categorize.

In spite of the fact that the last question was open-ended, the categorization revealed that a significant number of users agreed on a single demand: 70 respondents said they miss relaxation zones, and 43 answers mentioned the need for a group study space. The library has published the results of the questionnaire in an online version of Muni, the university's monthly magazine.

IT DID NOT END WITH JUST ONE QUESTIONNAIRE

The questionnaire investigation realized in 2014 revealed a number of interesting findings; it was, however, necessary to verify them and map them in detail. In the

How can you distribute the questionnaire?

Libraries have a great advantage compared with other research institutions — they usually have a list of addresses of its users, i.e. respondents in the potential research. If you do not use bulk e-mail too often, users will not perceive it as a spam mail, which is why it might be the best tool for collecting a large number of responses. One of the online census's characteristics is a lower return rate, but with a large base of potential respondents, using it is usually the most effective way of questionnaire research.

The control over who your respondents are is the reason why we recommend to use a couple of questions about who the respondent is — you can easily find out, for example, whether the ratio of the students, enrolled in full-time studies and combined studies who responded, matched the actual ratio of students of the faculty.

MU FA POLL

A group study space — The space where we can work on projects, study, consult, and speak aloud in a group.

don't need at all
1 2 3 4 5 sorely need

Comment: _____

A space for individual studies — A space separated from the surroundings, which is absolutely quiet and where I can study and work.

don't need at all
1 2 3 4 5 sorely need

Comment: _____

A place to relax — A comfortable space where I can rest, make a phone call, and chat with friends.

don't need at all
1 2 3 4 5 sorely need

Comment: _____

A place where I can eat — A space where I can heat my meal or make tea/coffee and eat in a quiet, dignified and pleasant environment.

don't need at all
1 2 3 4 5 sorely need

Comment: _____

A place where I can buy something — Small office supplies, e.g. pens, markers, sheet protectors, papers and others.

don't need at all
1 2 3 4 5 sorely need

Comment: _____

A place where I can leave my belongings — Lockers where I can leave my belongings in a short-term absence.

don't need at all
1 2 3 4 5 sorely need

Comment: _____

A place where I can leave a note — A notice board for messages, advertising.

don't need at all
1 2 3 4 5 sorely need

Comment: _____

Current state of the study rooms — I am satisfied with the current state and functionality of the study rooms.

very satisfied
1 2 3 4 5 very unsatisfied

Comment: _____

What do you think is the best about the current state, what do you perceive as the biggest problem...

spring 2015, the library continued the investigation with a follow-up poll. The aim of the poll was to ask about the designs of possible innovations, all of them were related to the change of library spaces.

The librarians knew they cannot afford to spend resources and energy on changes in which the users would not be interested. They also knew that they are unlikely to be able to fulfill all the users' demands. Therefore, they needed to know what the users miss the most. Such data were supposed to help them decide which area to primarily focus on.

Preparation of questions

The poll asked about seven realizable innovations. The changes were related to the space, which was introduced by a single sentence in the beginning. The respondents evaluated the necessity of changes on a scale of 1–5 (I do not need this at all – I really need it) and they were left some space for comment on their expectations of the space, i.e. how they were going to use it or what it should look like.

The final question asked them about how satisfied they were with the state of the study rooms at the time. In the end of the poll, they could add any additional comments.

The data collection was again facilitated by Google Forms

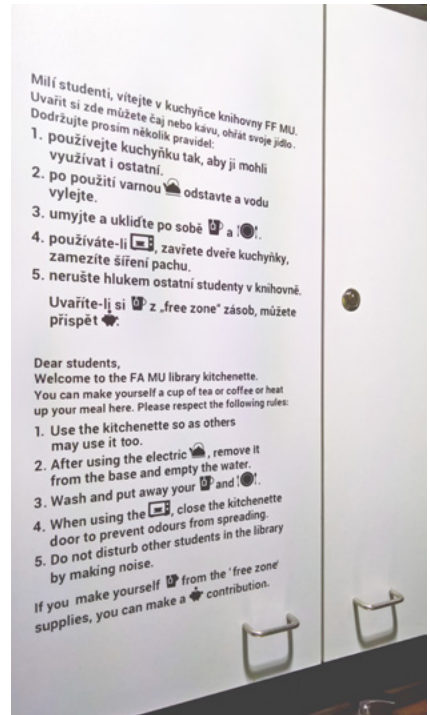
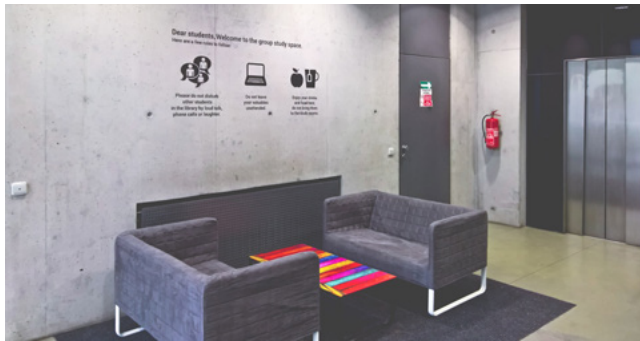
The librarians used Google Forms again, this time to create a poll. They distributed it in bulk e-mail again, as well as through Facebook page of the library, where 1,747 people saw it. The poll was completed by 998 respondents in a short time. One employee spent roughly a week on evaluation and categorization of the answers.

Analysis of responses

The results showed that some of the ideas from the first questionnaire were really important for the students. This helped the staff when they pursued the realization of the innovation.

The data obtained from the questionnaire helped us to understand which changes are needed the most. We found out that we should not spend energy to create a notice board, since there were only a few people interested in it.

Of all the proposed innovations, 65% of the respondents said that they missed a group study space. Just a slightly smaller number of (62%) respondents missed a place where they could eat. The space for comments helped the library staff to learn about users' expectations of the spaces and further process the information when designing. The majority of users were also afflicted by the absence of lockers (59%), a space for relaxation and louder conversation (56%), and individual study spaces (53%).



Even though it turned out that these are important issues, they could not be solved immediately due to architectonic and other barriers. The library could, however, work on an innovation that was possible and which, according to the results of the poll, was the most needed one — a group study space, where one could eat and drink, and (silently) relax.

A GROUP STUDY SPACE DESIGN

One problem that afflicted most of the users and that was possible to do something about was the absence of the group study place where one could also relax. The first step was to find a suitable space. That eventually happened — the previously inaccessible space in the basement of the library was chosen to serve as the group study space.

The next step was to design what the space would look like. This was to be decided by an internal team, which consisted of 2 employees and the chief librarian (Lenka Hořínková Kouřilová). They were in charge of both designing of space and the implementation — i.e. purchase of appropriate equipment. Having a small team made it easier to agree on the individual details and the final form. Due to the limited financial resources, the availability of selected equipment was, apart from the identified users' needs, also a criterion.

The resulting space includes two tables, each of which can sit a group of six students, and one small table, which can seat two. Two sofas and a coffee table are often used for reading. Later, the users' wish to amplify the Wi-Fi signal in the area was also realized. The librarians also placed a sign with a request not to disturb other users of the library as the sound easily travels through all library floors due to the library's architectural dispositions.

The space also includes a small kitchenette with a fridge, an electric kettle, and a microwave oven — which turns the basement into more than just a place for studying, but also into a place where one can enjoy refreshments and relax. The equipment was already part of the kitchenette for employees, the only thing that needed to be done was to make it available for the students.

The responses came swiftly

It was in the kitchenette where the students spontaneously created a Graffiti Wall. They started leaving messages and praises on post-its originally intended for the description of food in the fridge.

THE LIBRARY OF IDEAS AS AN INSPIRATION FOR FUTURE INNOVATIONS

The story of the MU FA Central Library does not end only with the design of a new space. Apart from the occasional questionnaire and poll researches, it is also important to collect feedback on an ongoing basis. The MU FA librarians drew inspiration from other libraries and selected *I wish this was...* method. It is used to continually collect users' suggestions and to let them to introduce topics and issues we might have never contemplated.

The MU FA Central Library is not the only library that employed this method. Most of the libraries, however, employed it as a one-time poll and the notice board or box for suggestion was only available for a limited time period. The Central Library uses it as a permanent method of feedback collecting.

I wish this was...

The inspiration for this project was drawn from the *I Wish This Was* project, which attempted to use creative means to draw attention to the state of the urban environment. This method is well-known in Czech libraries due to the book called *The Journey to the Interface*, for which a team from the PARTSIP project reformulated the original sentence into "I wish this library was...". This unfinished sentence is printed on small pieces of paper; users finish the sentence and leave them in a dedicated box or pinned on a notice board.

We needed users' feedback long ago, but it took us time to find the right means for collecting it.

The final design is a closed box with an appearance that resembles the library building.



It was needed to process the suggestions further — to categorize them, introduce them to other library staff, who cannot access them directly, jointly seeking possible solutions, and decide which suggestions should the library focus on. It is good to publicly respond to the feedback. The users will know that the library is interested in their suggestions, which might motivate them to come up with other ideas. The library shared the fulfilled wishes via social networks, its website, or on the notice board directly in the library space. The photos with innovations were continually filling the Facebook album and the published photos were a great success within the users.

An example of a small innovation might be opening up the access to drinking water.

We have had taps with cold water for the last eight years in here, they were just in an inaccessible area. The suggestions from the Library of Ideas helped us to realize that we can just give users the access to the taps.

DESIGN PROCESS IN THE MU FA CENTRAL LIBRARY

Within a year and a half, the library completed all the steps of an entire design process working on a single large project: creating a space for relaxation and group study. The more important thing, however, is that design thinking and methods continually help the library with the collecting of feedback and its evaluation as well as with proposals for small changes and their testing.

The team that worked on the innovation**Researchers:** Eva Jandová, Alena

Kmochová, Tereza Schwarzová

Matýsová, Igor Hlaváč, Jiří Žgánič

Šprdlík, Martin Kunc, Nikol

Neupauerová Gistingrová,

The team that designed the new space:

Lenka Hořínková Kouřilová, Alexandra

Škyříková, Eliška Mrázková

Information about the library

The Central Library at Masaryk University's Faculty of Arts primarily provides services to students and employees of the faculty and of the university. Other users from the public can also make use of in-house loans as well as of an interlibrary loan. The library book collection consists of approximately 816 thousand volumes, quarter of which are on shelves. There are approximately 400 places for studying and more than 80 computers with access to the Internet. Since March 2002, the library resides in a new building, which is a part of the main campus of the faculty.

Websiteknihovna.phil.muni.cz

Author: ???

Consultation: Tereza Bártová

A Journey to a New Library Website

The Central Library of CTU in Prague

Neither the library nor its users were satisfied with the library website. Both the confusing information architecture and the unsatisfactory and unresponsive graphic design led the library to the decision to “rebuild” the robust website. The work on the website was entrusted to a team of three (later two) librarians from the Studies Support Office. Their task was to propose a new structure of the website, to revise its contents, its design and technical realization. They managed to carry out user testing with more than 300 users even in spite of working with a small budget.

Methods used:

- ▶ Card Sorting
 - ▶ In-depth Interview
 - ▶ User Testing
 - ▶ A/B Testing
-

The website is both a showpiece of the library and an important source of information. People from each department have their own ideas of its contents. It can serve as a gateway to electronic information resources, users use it in order to obtain information such as the opening hours of the library or information about what is needed in order to register in the library. When designing the website, it was necessary to harmonize the demands and needs of the library with various groups of users.

The design challenge was to rebuild the website so that our users could actually use it.

CLEAR ORGANIZATION OF THE INFORMATION

The original CTU website had a chaotic structure as some web pages often concealed links to several other pages. Only a few users knew how to obtain the desired information; users often got lost. The interviews revealed that users, who looked for some information on the website, often entered the keyword into the search box without any attempt to retrieve the information in a different way.

When designing the website, the CTU team members progressed as follows:

- 1 The website structure design was based on the list of web pages from the original website. The librarians reduced the list by eliminating the obviously undesirable pages.
- 2 They showed the list to the individual departments, for which the content was relevant, in order to find out how complete the content was. By doing this, they made sure the website would not lack any important information.
- 3 The team incorporated the comments they obtained and, once again, showed the revised structure to the heads of individual departments. They worked with an online card sorting tool called *Optimal Workshop*, which enabled them to easily move individual pages into the relevant category.

The suggestions and comments from this initial testing gave rise to a website structure, which could undergo user testing with students as testers.

Cooperation with colleagues from all departments

Card sorting was not the only form of cooperation with colleagues from other departments. They also created the website content; they updated the original pages, or wrote texts for the new ones. The team also shared the information with the department heads on their meetings. The librarians always introduced the website design before they carried out the user testing. They also presented how the testing would be carried out and the research questions. All this was done, because the agreement with the procedure across the whole team was considered important by the researchers.

FIRST INTERVIEWS WITH THE PROSPECTIVE VISITORS OF THE WEBSITE

From the very beginning, the employees in charge of building a new website knew that their idea of the right web design might be very different from the idea of

Why is the information architecture important?

The visitor only needs a moment to scan the website and does not think over every choice he or she makes, hence the need for an understandable interface. The visitor, usually, goes for the first reasonable choice and does not consider possible alternatives. It is well described by the “satisficing” strategy (Krug, 2003) or Zipf’s principle of least effort (Zipf, 1949)..

the users. As soon as the individual departments cleared up what their demands were and the design of the website structure was agreed upon, they started with the first user testing.

Once it was decided that we would build a new website, it was clear that the user testing was necessary. It was the only way of finding out what the users needed and what they liked — we might have considered some designs great, but users might have not.

It might be difficult for the library to find respondents, especially in the exam period which leaves students with very little time. Another problem might be the students' unwillingness or shyness to express criticism. The authors have, therefore, decided to reach out to the easily reachable users who already had some knowledge of the library. It is always better to do at least one good user testing rather than none at all.

How to get testers?

Before you start with the testing, think about what kind of feedback is important to you. It is a good idea to think about various target groups when testing a website. You can, for example, base the testing on your *personas*. In general, we recommend to bring together a group of testers that represent both people who already know you (existing users) and prospective users. The former can be easily recruited in the library. If you work in an academic library, the latter might consist of students of a secondary school that is located close to your university.

The CTU testers were PhD students enrolled in the e-learning course, which took place at the time as the process of designing of a new website. After the end of the last lesson, the librarians politely asked the students for 10 minutes of their time. They were very willing to help with the testing: they inspected the design, tried to find some information, and the testing, eventually, took almost two hours. The users appreciate when the library takes interest in their opinion and listens to them. Some of the PhD candidates also offered that they could leave their contacts, in case the librarians needed to ask some follow-up questions or help.

The authors have focused on improvements made in the organization of the website and searching on it, as it was the tool students used most frequently.

The improved usability manifested in the design itself, which was supposed to take a simpler form while the graphic design of individual articles improved and allowed for their clearer organization compared to the original website. The team could immediately incorporate the collected feedback into the design.

TESTING WITH 300 USERS IN A TEAM OF TWO

The resulting website, however, was supposed to be used by a wider group than just PhD candidates. It was needed to test the website with all parties that were going to use the website (from the freshmen in BA studies to PhD candidates, employees, and professional community). The authors needed to collect opinions

from more groups of students, whose needs might have been very different. Some of them might not even ever physically visited the library. One also cannot forget about differences between users, who see the website for the first time, and experienced users, who look for a particular information. The interviews, even with representatives of all the relevant groups, would have taken a huge amount of time for a team of two. The librarians have, therefore, decided to use an online tool for testing called *Usability Hub*. It was easy to set and offered the option to use ready-made tests.

“Testing the testing” to check the interest

Pilot testing is usually conducted in order to verify that the test questions are clear and understandable. In this case there were only two questions in the pilot testing, main purpose of which was to ensure that users would have been willing to participate in this form of testing. Had only a few people responded to the pilot, it would have been pointless to pay for the full version of the testing tool. The easiest way of ensuring that the users were interested in testing was to create a pilot test with a minimum number of questions, which would be possible to do even in the free version of the tool. The call for completing the test was placed on the Facebook page of the library, and received positive reactions as well as many instances of sharing on their own Facebook walls. Thanks to this, the library could feel safe to invest and subscribe to the tool.

The form of the actual test and progress of the testing

The actual test consisted of 12 tasks and questions, some of which were open-ended. The questions were the result of the preparations of the website and its aim was to check whether the organization of the website and its design corresponded with the search logic of the users.

Questions:

- ▶ “Which of the following designs do you like better?” (This question asked about their preferred skins; these were changed mid-way through the testing, see below)
- ▶ Where on the homepage would you expect to find a catalogue? (so-called click question — a tester was asked to click on the space where he or she would look for the catalogue)
- ▶ Where on the homepage would you expect to find the guide for referencing? (click question)
- ▶ What would you expect to find under the “Search” menu item? (open-ended question)
- ▶ Do you miss anything that should be on the homepage (information, category...)? If so, write down what it is. (open-ended question)

- ▶ Where on the homepage would you expect to find the user account? (open-ended question)
- ▶ Where would you expect to find a contact on the library? (open-ended question)
- ▶ (Screenshot of the Resources navigation pane) Where would you expect to find consultations? (click question)
- ▶ (Screenshot of the homepage) Where would you expect to find a guide for writing a professional article? (click question)
- ▶ Where would you expect to find IEEE database? (navigation test)
- ▶ (Screenshot of the homepage) Where would you expect to find information about diploma theses? (click question)
- ▶ (Screenshot of the homepage) Where would you expect to find background researches? (click question)

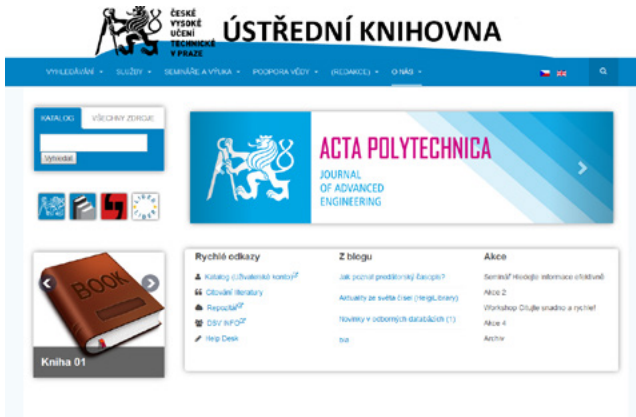
The testing was carried out for a whole month and some of the changes were made in course of the testing. Once the authors found out that some element causes problems to 80% of the testers, they attempted to change it immediately in order to verify the usability of an alternative design solution.

They, for example, changed names of some categories in course of the testing. The testers did not know how to construe “Search” as a name of a category; the authors have, therefore, renamed it as “Resources”. Other changes were related to the proposals of the design. The first two designs underwent *A/B Testing* with a result ratio of 74 to 116 votes. Mid-way through the testing, the librarians decided to compare the design proposal with 116 votes with a more modern design; the new design won by 88:15, a result more pronounced compared with the first testing.

In a month of testing, the authors obtained responses of almost 300 testers from various years of studies, including prospective CTU students. In most cases, the testers raised relevant technical questions and provided valuable suggestions for the improvement of the user experience.

Small rewards as a tool for motivating the respondents

Completing the test could have taken up to half an hour. The testers were promised a small reward in order to motivate them to complete the testing. The rewards were small gift items the library received from the distributors of professional databases (diaries, Frisbees, or bookmarks). Some candy might please the testers as well — at CTU, they were rewarded with traditional Czech licorice candy due to its blue color that matches the visual style of the university. In order to receive the reward, the respondent had to leave his or her e-mail contact. Even though the librarians collected about 200 e-mail addresses, only some 30 respondents collected their rewards in the three months after the testing ended.



Quantity vs. Quality: how many testers do you need for A/B testing and for direct testing with users?

There is no clear answer to the question of what is the ideal number of testers in the user testing. Testing with users will, generally, give the researcher a richer feedback while it is enough to conduct fewer tests — Nielsen Norman Group, for example, recommends five user tests for most of the cases.

The remote testing requires higher number of tests, which is also caused by a smaller number of variables with a feedback which does not go in depth. In case of A/B testing, when the subjects of the testing are different properties of the service, it is only reliable when conducted with higher dozens or hundreds of testers.



Figure 1

Library website

How to test a new website?

Before launching the website, we recommend to test the intended innovation on a small sample of users. The testing can help you to find any potential problems. User testing is a source of valuable feedback and the library can save a lot of time and financial resources by discovering the problems in the early stage of the development.

The team that worked on the website

Ilona Trtíková (until January 2016),
Tereza Bártová, Eliška Neprašová

CHECK OF FUNCTIONALITY IN THE TRIAL RUN

Before the intended launch of the website at the beginning of the semester, the team checked the functionality of the website in a trial run. The URL address of the library led to the original website, where one could find a link to its new version. After the launch of the website on 20 July 2016, approximately 300 people visited it. The reactions were mostly oral and overall positive.

Should you have any questions, you can contact Tereza Bártlová (tereza.bartova@cvut.cz) or Eliška Neprašová (eliska.neprasova@cvut.cz).

Information about the library

The Central Library of the Czech Technical University in Prague primarily provides services to approximately 20 thousands of CTU students and employees as well as to the professional community. In 2009, it moved to a new building of National Library of Technology with its address on Technická 6.

Website

knihovna.cvut.cz

Author: Pavla Minaříková

Consultation: Lenka Hanzlíková, Veronika Hyblerová Trachtová

The Knihovny.cz portal will serve users

Municipal Library of Prague

How to prepare a user-friendly portal to make the collections of libraries from all over the Czech Republic accessible to readers? The implementation team decided to explore user requirements using a multiple round survey. In the text step, readers' wishes needed to be aligned with the possibilities of the existing technical solution.

Methods used:

- ▶ Questionnaires
 - ▶ In-depth interviews
 - ▶ Personas
 - ▶ User testing
-

WHAT IS THE CENTRAL LIBRARY PORTAL

The portal at the address *Knihovny.cz* has existed since 2004. The main role of the portal at that time was to inform the public about services offered by libraries — it also contained a dictionary of library terms. The original portal is today available at the address archiv.knihovny.cz. The idea of a new Central Library Portal (in Czech: Centrální portál knihoven — CPK) was first formulated in the Libraries' Development Conception for the years 2011–2015. The portal is being created with the help of a library consortium and under the auspices of the Czech Republic Libraries Association (SDRUK). Since 2014 the portal has been developed by the Moravian Library.

According to the new conception, the main aim of the *Knihovny.cz* portal is to allow users to search for books from all libraries. The existing union catalogue and Uniform Information Gateway are in fact inaccessible for an ordinary user — searching in them requires a sound knowledge of the searching mechanisms.

The aim of the portal is to provide a solution that will enable you to obtain a book or information in an easy way, without having to visit the library concerned or conducting a complicated search in the databases of individual libraries.

— Knihovny.cz

Documents should not be the only focus of the portal. Information about individual libraries, their services and events should be also available. The option that small libraries may use the portal as an alternative to having their own website is also being considered as a plan for future. The design and requested functionality of the portal have been gradually developed and adapted, among other things, to reflect the findings of a user survey.

We addressed a sample of potential users through a survey and also used prototyping. We tried to find out what the users wish for and to see the service through their eyes.

— Project Intent: Version 5

WHAT DO USERS NEED?

Librarians and library users can have different ideas of the portal's design and functionality. User expectations were mapped in 2013 through a questionnaire survey. An external agency pp factum carried out structured interviews with a sample comprising 1,601 users from 16 libraries of different types on the basis of input prepared by a CPK working group. Scientific, regional, municipal as well as specialized libraries were represented.

The questionnaire survey covered a broad sample of users. Given the intention to quantify the responses, a closed-question survey was selected. In its introductory part the idea of a Central Library Portal was presented. The questionnaire questions explored how users use the services of libraries and existing uniform online resources, surveyed interest in planned functions of the portal and asked users how they thought they would use the portal. The closing part contained demographic questions. The responses revealed to the implementation team how to tailor the portal to the needs of the users.

What findings did the questionnaire survey bring? Most importantly, it revealed the fact that there are three main types of library visitors:

What is an appropriate sequence of questions in a questionnaire?

Simpler questions and questions introducing the topic in a step-by-step manner should be placed at the beginning. Key questions should form the main body of the questionnaire. Where a questionnaire contains sensitive topics, the related questions should only appear in the second part of the questionnaire when the respondent's trust has been built up. Questions dealing with personal and demographic characteristics are usually placed at the end of the questionnaire.

- 1 *Young people, mainly students* visit libraries to get study materials; they simultaneously use the services of several libraries, are able to carry out a more complex search, know foreign languages and are also inclined to use modern technologies (including e.g. online shopping).
- 2 *Middle-aged people* visit libraries mainly because of work and the demands of their jobs; they do so to increase their qualifications. They know foreign languages, but to a lesser degree. They know how to search for information, but mostly in a simple way and are less inclined to use modern technologies.
- 3 *Older people, retired people* visit libraries for fun; they are keen on a particular field. They usually visit only one library, mostly do not know foreign languages, can experience difficulties in searching for information and are not much inclined to use modern technologies.

WHAT DO LIBRARIES NEED?

The needs of libraries were explored by a CPK working group through a questionnaire survey made available online in 2013. The distribution was organized by the Librarianship Institute of the National Library. The questionnaire dealt with individual portal functions and the willingness of libraries to provide some of the planned functions. It also examined fears on the part of libraries in connection with joining the project, their awareness about the portal and their potential interest in further information.

The survey revealed that libraries need in particular to:

- ▶ gain information about availability of documents and terms and conditions that apply to obtaining them from all Czech libraries,
- ▶ integrate information sources at a single place,
- ▶ gain access to information sources that have so far not been used or have been unknown,
- ▶ simplify interlibrary loan services,
- ▶ search in domestic sources.

WHAT ELSE DO USERS NEED?

In 2014 the first series of in-depth interviews was conducted with 23 informants. These interviews resulted in 3 basic personas. The survey was carried out by the Direct People agency.

The survey brought a number of inspiring observations, therefore the CPK Board decided to continue with it also in 2015, using a larger respondent

This was the first time that user perspective appeared in the project; up to this point attention was focused mainly on technical issues. It was good to see that users perceive the entire project from a different perspective and have different expectations.

— Veronika Hyblerová Trachtová

sample and a higher number of locations. The survey was once again conducted by the Direct People agency. Its objective was to find out what the views of users of the service being developed are and to obtain additional information. Informants were recruited by the Municipal Library of Prague, Education and Research Library of the Pilsen Region and the Municipal Library in Tábor.

The Direct People agency carried out 10 in-depth interviews in two locations other than Prague — in Tábor and Pilsen. The interviews also dealt with potential user scenarios of the portal that had previously not been discussed.

Analysis of data obtained

Using the data from the in-depth interviews, the description of the original 3 personas was expanded and they were thus outlined in more specific terms in comparison with the initial proposal by the CPK working group. These personas are Marie, a fiction reader, Kristýna, a student, and the last persona of a scientist that has been newly divided into two separate personas based on the relationship to digital technologies — traditional scientist Petr, with a reserved attitude towards digital technologies, and Adam, a scientist who likes to use them.

Each persona is usually assigned a name, age and an illustrative picture. For personas for the *Knihovny.cz* portal the Direct People agency also included a motto summing up the persona's relationship to the service, a brief presentation of the persona, its main goals and rituals and a "I am doing well" and "I am not doing well" section summarizing the needs of the persona.

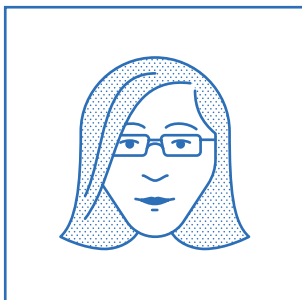
In addition, an overview of requirements identified for individual phases of users' journey through the portal was generated. There are two categories of requirements according to the main purpose of the visit — entertainment or education.

The personas and a requirements overview facilitated creation of a website design proposal. In the next step, screen prototypes that were tested in 2 rounds, each time with 10 users in two different locations — Česká Třebová and Prague in the first round and Olomouc and Zlín in the second round — were produced.

What are user scenarios?

User scenarios are concerned with user requirements related to a proposed website or service. The situations that users encounter can be described with varying degrees of detail. In testing the *Knihovny.cz* portal, for instance the "sing-in and personal profile management process" or "reservation and ordering of selected items" scenarios were used.

PERSONA 1 — READER OF FICTION



Marie, 37 years

Elementary school teacher

The family lives in an apartment building at the edge of the city of Tábor. Marie is a member of the city library, where she borrows mainly fiction books for her and her children, who are elementary school students. She favours several branches of the library which are located close to her home or workplace. She prefers detective fiction and borrows fairytales for her kids.

“There’s too much stuff here for me. I don’t want to click all the time.”

Main goals

- ▶ Obtain information about new books she should not miss
- ▶ Pick a book which will be both entertaining and valuable for her or her children
- ▶ Obtain other books from a “tried and tested” author
- ▶ Keep track of what has she borrowed and ordered
- ▶ Not borrow too many books which she then won’t find time to read

Is successful at

- ▶ Finding time to read and visit the library on a regular basis
- ▶ Inspiring others around her to read and recommending books to them
- ▶ Finding out whether a book is available using a mobile phone, but not reserving or ordering it
- ▶ Guessing that the book might not be easily available (new book, author reading)

Rituals

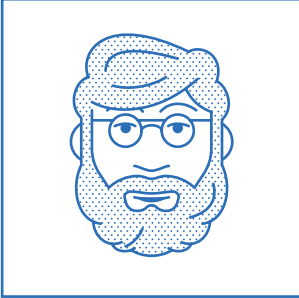
- ▶ Asks the librarian for book recommendations - what should she borrow next
- ▶ Doesn’t reserve books most of the time. She believes that the book will be available at the library when she wants to borrow it
- ▶ Searches for inspiration in bookshops, then searches for the books at the library website
- ▶ Visits websites (Databáze knih / Database of Books) and groups on social networks to find inspiration
- ▶ Keeps a list of books she wants to read and a paper reading journal

Struggles with

- ▶ Following new book releases on topics she is interested in
- ▶ Remembering her library card number and signing in
- ▶ Remembering her password when it is not saved in her browser
- ▶ Book reservations (she forgets about them, then they don’t suit her anymore or she receives a large number of books at the same time)
- ▶ Viewing the contents or a part of a book at the library website

Figure 1

An example of persona for the website Knihovny.cz

PERSONA — SCIENTIST (DIGITAL)**Adam, 32 years**

Post-graduate student at the Tomas Bata University in Zlín

Uses the library primarily for scientific purposes — he is a member of the university library and the National Library. He spends most of his day at the computer.

“Nechci tahat knížky, chci mít všechno v počítači.”

Main goals

- ▶ Gain access to the newest scientific papers and other sources from the Czech Republic, but mainly from abroad
- ▶ Have the option to search and easily copy text from scientific sources
- ▶ Confirm that the book or paper is of sufficient scientific level (scientific, but also regular reviews)
- ▶ Copy citations in different systems directly into the clipboard without selecting the text
- ▶ Find the same source in different form (e-book instead of a physical book etc.)
- ▶ Keep a list of pre-selected items in one place

Is successful at

- ▶ Working with electronic documents
- ▶ Getting hold of reviews for chosen books (Google Books etc.)
- ▶ Searching in different libraries (union catalogue), even abroad
- ▶ Using specialised databases

Rituals

- ▶ Downloads files into folders arranged by topic (especially in PDF format)
- ▶ Uses extended search (usually fills in information about the author, publishing year, sometimes the publisher)
- ▶ Opens relevant search results into new tabs
- ▶ Searches for sources (especially foreign ones) through verified publishers

Struggles with

- ▶ Finding necessary materials as fast as possible
- ▶ Obtaining a document without having to register. He would welcome the option to make a one-time payment (e.g. a through text message)
- ▶ Easily browsing and discovering interesting sub-topics in his field

Figure 2

An example of persona for the website Knihovny.cz

CREATION AND LAUNCHING OF THE PORTAL

It was not only the results of the survey of libraries and users that played a crucial role in creation of the portal. The findings gained provide a valuable insight as to the direction of the project, but the final design of the portal depends on the selected technical solution and available data. Since data quality varies and the number of records from individual libraries is enormous, it is for instance not possible to provide users with arrangement by topic (at least not in the form suggested on the basis of user interviews). Another key factor in creation of the portal is the willingness and ability of libraries to take part in its development and use.

In 2015 the Proof & Reason agency entered the project and was to supply a graphic design of the interface. In addition to the graphic design, the agency's task was to link the newly launched functional beta version of the portal with proposals by Direct People and also to meet to discuss the proposals with the development team in person in the Moravian Library as and when needed.

Full release of the portal was launched in September 2016. In order for the public to make the most of using the *Knihovny.cz* portal, as many libraries as possible should first get acquainted with the portal. The plan for the second half of 2016 is to teach librarians how to use the portal. The portal should be presented to the public starting in October 2016.

Libraries and other organizations participating

Municipal Library of Prague, Moravian Library, Librarianship Institute, Central Library Portal working group, ppm factum, Direct People, Proof & Reason

Website

knihovny.cz

Author: Jan DeLong

Consultation: Martina Wolná, Martin Čadra

They are still at the beginning of their service design journey at the Třinec Library

Třinec Library

Before the long-awaited reconstruction materialized, the Třinec Library had operated in inappropriate premises. Along with a vision of a new modern building, librarians started to think about service design too. Using design methods, they determined to find out who the users of the library are, what their wishes are and where they feel good.

It was unfortunately too late for the results of the survey to have any substantial impact on the new library, but a few little services were nonetheless created. More importantly, service design became an important part of working with the users and fulfilling their needs at the Třinec Library. The librarians in Třinec use service design methods for instance in developing a strategic plan. Despite the experience gained, they say that they are still at the beginning of a long journey.

Methods used:

- | | | |
|-----------------------|------------------|-----------------|
| ▶ Brainstorming | ▶ I want... here | ▶ Observation |
| ▶ Questionnaires | ▶ How might we? | ▶ SWOT analysis |
| ▶ In-depth interviews | ▶ Personas | ▶ Desk research |
-

The Třinec Library operated for a long time in the premises of former kindergarten situated in the centre of the town. The location of the library was ideal, but the kindergarten building was not fit for their purpose — there was not sufficient space for users, books and staff, the roof was leaking and the library could use only a part of the building (there was also a tea-room and a low-threshold and volunteer centre in the building). The library development was limited by all these factors and a change was necessary.



Figure 1 The new library building in Třinec

A change came with a project that included a complete reconstruction of the kindergarten building and its transformation into a new, modern library building. The entire process took more than 10 years to complete and comprised changes at the level of processes, ideas and people.

The vision of a new library was within reach and was slowly becoming a reality. Thanks to this the Třinec librarians started to think about service design and started to pose (not only to themselves) crucial questions: What will the new library offer to readers, visitors and users? What kind of library would they like to see? And who are in fact the users? Where do they feel good?

LOOKING FOR ANSWERS USING DESIGN THINKING

When searching for answers, the librarians in Třinec used several design thinking methods. The most important ones were identifying the design challenge, desk research, brainstorming, defining personas and subsequent in-depth interviews. To find out user needs or to introduce new services they also use observation, the *I want... here* method, *questionnaires* and the *How might we?* method.

Service design gradually became an inherent part of the journey to getting as close as possible to all those who use the library or could use it in the future. The preparation of a strategic plan in which the Třinec Library applied the SWOT analysis may serve an example of this approach.

Librarians divided into teams according to their workplaces (Children's department, Mclub, Adults' department, etc.) analysed the library's strengths,

	HELPFUL	HARMFUL
INTERNAL	<p>Strengths</p> <ul style="list-style-type: none"> ▶ Working with seniors ▶ Service design ▶ Educational events 	<p>Weaknesses</p> <ul style="list-style-type: none"> ▶ No payment terminal ▶ Failing to follow through with things ▶ Rule setting
EXTERNAL	<p>Opportunities</p> <ul style="list-style-type: none"> ▶ Civic education ▶ Cross-border cooperation ▶ Library as a technology park ▶ Information education 	<p>Threats</p> <ul style="list-style-type: none"> ▶ Change of political representation of the town ▶ Losing subsidies ▶ Scissors of social inequality opening ever wider

Figure 2

SWOT analysis

weaknesses, opportunities and threats. The results were important for further phases of strategic planning, e.g. setting of future challenges and goals.

The entire library team took part

The design process has been driven mainly by the manager of the Třinec Library Martina Wolna and Martin Čadra who is in charge of the MClub — one of the first library departments primarily focused on young people and genre literature. Adam Hazdra and his colleagues from KISK (Division of Information and Library Studies at Masaryk univerzity) acted as consultants and advisers. But the entire library team participated in the final phase.

Defining problems and the design challenge

At the beginning, librarians concentrated on defining problems, goals and a design challenge. They agreed that the Třinec Library should become the third place in the lives of citizens of Třinec. Therefore, the main aim was not only to find answers to the questions outlined that concerned the library, but also to find out where the respondents feel good.

This was the first time that the librarians in Třinec decided to get a more detailed picture of who their users are. After a joint brainstorming, the librarians got a better idea of who visits their library and what the basic characteristics and qualities of their users are.

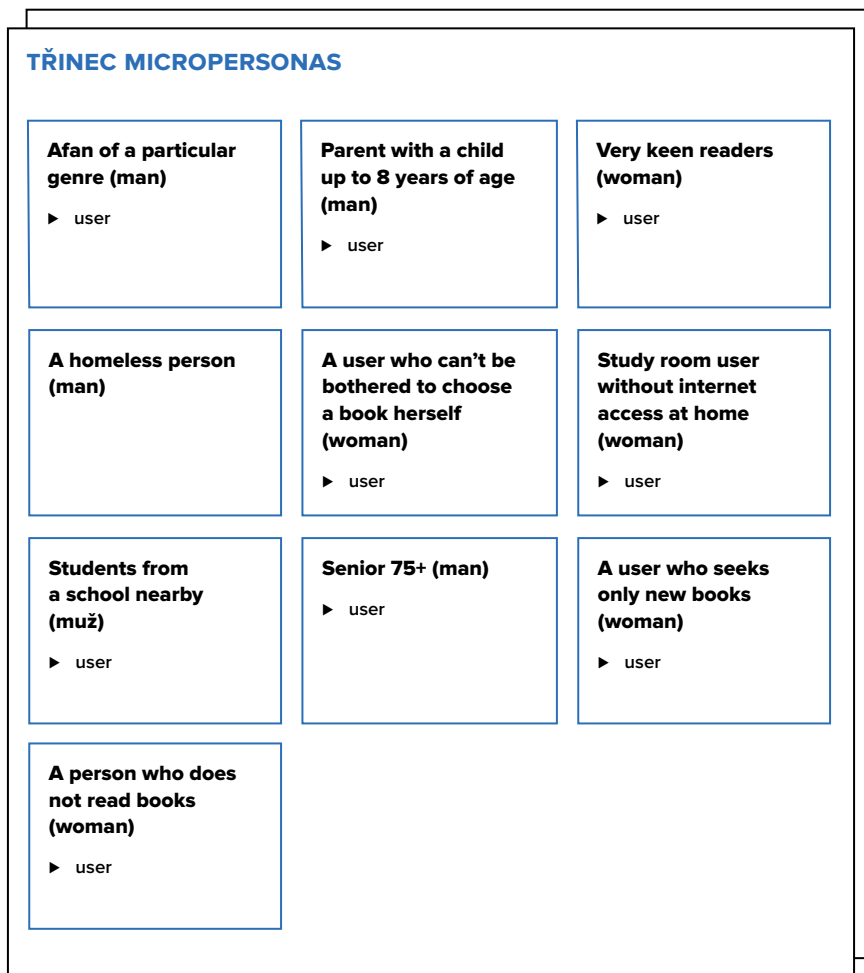


Figure 3 Třinec micropersonas

Model users: personas and micropersonas

Based on the findings mentioned above, the library created personas. Since it was a comprehensive survey of users and their needs and since the library is open to all age groups, the librarians defined altogether 46 personas, in this case more specifically "micropersonas". Such a high number has its foundation in the breadth and scope of the survey. In Třinec, they were trying to identify and learn about all possible library users.

This led to a large number of micropersonas that can be used in designing small-scale and more specifically targeted services. The micropersonas may be also merged into more general personas to be used in the process of creating services for a broader category of users. It should be noted that the respondents also included those who do not visit the library, are not registered users or have never



Figure 4 In-depth interview

What does an in-depth interview look like?

It usually consists of five stages.

- 1 Introduction** Do not forget to introduce yourself and explain the aim of the interview. This initial stage should include not only an explanation that the interview is anonymous but also a request for consent to record the interview. In addition, any potential questions of the informant should be also answered.
- 2 Warm-up** This phase is in particular focused on building of a relationship based on trust. You can start with questions about the environment where the interview is taking place or other non-challenging topics.
- 3 Main interview** Only now do you start to pose questions according to the script prepared in advance.
- 4 Cooling down** This phase occurs when the main interview is coming to an end. You can direct the interview to an informal level to make coming to a close easier.
- 5 Closing** Thank the participant and say goodbye, the interview is over. But you should stay alert — this is the moment when the last tension is released and therefore this can be the point where you can learn something interesting.

been to the library, because the librarians also wanted to approach these groups in the new library.

In-depth interviews

Several tens of in-depth interviews that provided a broad range of views of life in Třinec and of the library in particular — wishes and expectations associated with the new library — followed. The meetings and interviews took place in the library but also at other sites: in parks, confectioneries, cafés and bars. Thanks to this the atmosphere of the interviews was mostly casual and the respondents could relax.

SURVEY TIMING AND RESULTS

The survey and the interviews brought valuable findings, but in this case the timing unfortunately played a crucial role. The Třinec Library decided to adopt a service design approach in the last stages of the library building reconstruction. The librarians could no longer intervene in the project or the interior. After moving into the new library building and its opening, some of the possible changes and new services were hard to implement. However, other changes were already part of the project of a new



Figure 5 Children's library

library, e.g. more seats, nicer premises, better accessibility in comparison with the temporary location of the library during reconstruction.

Even though the original effort and a large-scale user survey could not have the maximum ideal impact in all areas, it was an important step for the Třinec Library. It meant a shift in thinking and approach and showed the importance of service design in libraries.

Yet the most significant and valuable component was the meeting with users and finding out who the users and readers as well as those who do not visit the library are. Most importantly, it was the first time that the public were invited to take part in creation of something that exists primarily for them. Thus the users and the librarians formed for a while one team.

This has revealed the fact that it is again the people — the librarians — that make the library the way it is. It means those who willingly help users search for information or select books, those who arrange cultural and educational events and make sure that everything in the library is up and running.

Becoming aware of the library's significance and role in the town is important for work in the new library and has been helpful in the process of facing new challenges encountered by the staff of the Třinec Library. It has also provided necessary motivation for further work.

CONTINUOUS WORK WITH THE METHODS

Data collected in the survey were used in looking back at the entire process. Using the *How might we?* method, the librarians set a few minor goals that were

SURVEY OF LEISURE EDUCATIONAL ACTIVITIES FOR ADULTS

Hello,

Please spend 5 minutes of your time to fill in the following questionnaire that we use to learn about the interest of adult citizens of Třinec and its vicinity in leisure educational activities. This means e.g. creative workshops, working with a computer, learning a foreign language, etc.

We will appreciate your insights and suggestions that can help us improve our work and expand the existing offer. The questionnaire is anonymous. If you wish to leave us your contact details, you can do so (see below).

Thank you for your answers.

Do you spend any spare time on self-education?

- yes no, but I would like to no

*If you responded NO to the previous question, please do not continue.
Thank you for your cooperation.*

Where do you do most often engage in education?

- at home at a course other: _____

Where do you attend educational courses?

- library at work other: _____
 training centres internet

Do you attend educational courses focused on your interests, hobbies?

- yes no sometimes

What is your motivation for engaging in education focused on your interest?

If you responded NO to the previous question, skip this question.

- I want to develop myself I want a better job I enjoy it other: _____

How far are you willing to travel for education

- I want to learn where I live 1–20 km 21–50 km more than 50 km

How much are you willing to spend annually on education?

- CZK 0–500 CZK 1,001–5,000 více než CZK 10,000
 CZK 501–1,000 CZK 5,001–10,000

Do you think that the offer of leisure educational events in Třinec is sufficient?

- yes no I cannot judge this

How often do you visit the Třinec Library?

- daily 1× per month 1× every half a year I don't visit the library
 1×–2× per week 1× every 2 months 1× per year
 2× per month

Do you use the Třinec Library for:

If you responded I DON'T VISIT THE LIBRARY to the previous question, skip this question.

- entertainment study and education my job other: _____

We are currently preparing new educational programmes. Which of the suggestions below would you be interested in?

- | | | | |
|--|--|--|--|
| <input type="radio"/> yes / <input type="radio"/> no | My municipality and my region | <input type="radio"/> yes / <input type="radio"/> no | Processing of digital photographs |
| <input type="radio"/> yes / <input type="radio"/> no | How to make a family tree | <input type="radio"/> yes / <input type="radio"/> no | Financial literacy |
| <input type="radio"/> yes / <input type="radio"/> no | How to understand contemporary art | <input type="radio"/> yes / <input type="radio"/> no | Legal literacy |
| <input type="radio"/> yes / <input type="radio"/> no | Science for people | <input type="radio"/> yes / <input type="radio"/> no | Consumer literacy: unfair commercial practices |
| <input type="radio"/> yes / <input type="radio"/> no | English language course | <input type="radio"/> yes / <input type="radio"/> no | Visual art techniques course |
| <input type="radio"/> yes / <input type="radio"/> no | Memory training course | <input type="radio"/> yes / <input type="radio"/> no | Board games club |
| <input type="radio"/> yes / <input type="radio"/> no | Creative writing course | <input type="radio"/> yes / <input type="radio"/> no | Club of fathers with children |
| <input type="radio"/> yes / <input type="radio"/> no | Computer basics | | |
| <input type="radio"/> yes / <input type="radio"/> no | Modern technologies for seniors (tablets and smart phones) | | |

Other educational topics that I am interested in: _____

In what time periods are you willing to take part in educational events?

- | | | |
|---------------------------------------|---------------------------------|---------------------------------|
| <input type="checkbox"/> 8–10 am | <input type="checkbox"/> 1–3 pm | <input type="checkbox"/> 5–7 pm |
| <input type="checkbox"/> 10 am –12 pm | <input type="checkbox"/> 3–5 pm | <input type="checkbox"/> 7–8 pm |

You are:

- a man a woman

Age:

- 18–26 years 27–39 years 40–50 years 51–64 years 65 years and over

Where do you live?

- In Třinec less than 15 km from Třinec more than 15 km from Třinec

Thank you. If you are interested in receiving information about the library activities, please indicate your e-mail address or phone number: _____

achievable within a short time interval. The goals were derived mainly from the input of the in-depth interviews but also from user behaviour observation and user feedback gathered on a continuous basis.

This resulted in putting up a shelf with new books, expanding the offer of specialized magazines, purchasing new Slovak books, better thematic designation of the library stock in the adults department or installation of a screen by the library entrance displaying the programme for current month. Using the *How might we?* method, Třinec librarians managed to complete things that still needed to be done in the new library after the reconstruction.

The Třinec Library works with the *I want ... here* cards on a continuous basis. Most often they find on the cards tips for books that the readers miss in the library, requests for educational activities, such as handicraft or visual arts courses.

Questionnaires are also worth mentioning. The last questionnaire survey conducted concerned leisure educational activities of adults, i.e. a group that libraries in general find relatively hard to grasp and address with a particular offer. The results should provide not only inspiration for extending the offer of educational activities, but in the first place should lead to a better targeting of a particular group. The questionnaire was created using Survio.

AT THE STARTING LINE

The Třinec Library is still at the beginning; it is past the warm-up round which gave it an opportunity to examine the terrain, assess its possibilities and prepare a strategy. Now, it is standing at the starting line. After a sharp start of the process of designing services, it is to embark on a long journey to fulfil the vision “to become the third place in the lives of citizens of Třinec”.

If you have any questions, contact Třinec librarians: [Martina Wolná](mailto:Martina.Wolna@knihovnatrinec.cz) (reditelka@knihovnatrinec.cz), [Martin Čadra](mailto:martin.cadra@knihovnatrinec.cz) (martin.cadra@knihovnatrinec.cz) or [Honza Delong](mailto:Jan.Delong@knihovnatrinec.cz) (jan.delong@knihovnatrinec.cz).

The team that took part in the service design

Martina Wolna, Martin Čadra a celý třinecký knihovnický tým

Information about the library

The Třinec library operates in a modern, reconstructed building and in addition to traditional library services users and visitors can also take advantage of a broad range of educational and cultural events. The organizational structure of the library includes also Třinec Information Centre and Třinec Gallery.

Website

www.knihovnatrinec.cz

Authors: Pavla Minaříková, Roman Novotný

Consultation: Alena Chodounská

Libdesign project and 35 methods for better services

Division of Information and Library Studies

The Libdesign project was created and evolved with the support of the Division of Information and Library Studies. It started with the idea of facilitating research in libraries. Gradually, attention was shifted to design thinking and service design.

Methods used:

- | | | |
|-----------------------|----------------------|-----------------------|
| ▶ Questionnaires | ▶ How might we? | ▶ User testing |
| ▶ Focus Group | ▶ Net Promoter Score | ▶ Desk research |
| ▶ In-depth interviews | ▶ Personas | ▶ Wireframe & Mock-up |
-

IDEO, Hear | Create | Deliver and Human-Centered Design

Human-Centered Design is a process that has been named and described by the IDEO company. It has three phases: Hear, Create and Deliver. The first phase focuses on field research — the team collects stories of people whose problem they are trying to solve. In the following phase, the team proceeds from findings to more abstract deliberations about possible solutions and then back to producing concrete prototypes. The final phase consists in putting the selected solution into practice and evaluating its success.

For more information about HCD: visit IDEO website Design Kit at [designkit.org](https://www.designkit.org).

FROM RESEARCH SUPPORT TO SERVICE DESIGN

The Libdesign project started as a student project and its initial phase demonstrates why it may be useful to change direction in the course of a project.

The follow-up Master's degree study programme at the Division of Information and Library Studies (KISK) included a compulsory course titled Application seminar (APLS) delivered in a project-based learning format. The aim of the course was to guide students through project life cycle starting with the initial idea to bringing a product or service to life. The composition of the APLS course was based on the design process as promoted by the IDEO agency and the Human-Centered Design (HCD) philosophy. The initial weekend meeting was aimed at getting students to identify a problem that they will be trying to resolve in the upcoming year.

The Libdesign project focused on library research, conducted solely in academic libraries. We drew on the Research activities project (vyzkumy.knihovna.cz) the aim of which was to provide libraries with methodological support, in particular in conducting satisfaction surveys and obtaining feedback. In line with the HCD approach, we first needed to map the territory. Therefore, the Hear phase also included *desk research*: specialized resources search, mapping of research activities in libraries, identifying key persons and institutions in the field, analysis of educational events concerning research activities that were carried out in the past four years. An initial survey can help specify the problem and look for a solution as it often shows that a similar problem has already been dealt with by somebody else.

Using the information obtained, we created a *questionnaire*. We sent it by e-mail to representatives of academic libraries listed in the directory of the Association of Libraries of Czech Universities that comprised 80% of the sample and also to specialized and regional libraries. Our aim was to identify the needs, attitudes and experience of library staff. One of the positive effects of the questionnaire was its recruiting function — obtaining contact details of employees willing to participate in the next round of the survey.

This enabled us to conduct five *in-depth interviews*. These were semi-structured interviews conducted in accordance with a pre-scripted scenario. They were aimed at gaining a deeper insight into the problems that the employees engaged in research at the given institution are faced with. We needed to arrive at a more specific focus of the project that was at this phase defined in relatively vague terms as “research support in academic libraries”.

The data gained through the questionnaire and the interviews crystallized into three *personas*, model (in this case all female) representatives of the target group. We also identified several issues. The most significant ones were:

- ▶ difficulty in convincing library management about research benefits,
- ▶ insufficient human resources basis to conduct research,
- ▶ insufficient knowledge to conduct the research or adapt it to the needs of the institution.

We entered the creative phase of the design process with a clearer idea of the target group and with ideas for a solution that needed to be tested. We prepared two prototypes and presented them to the representatives of the target audience during a focus group session. The first prototype was a conference; the workshop participants were putting together an ideal programme using suggestions prepared in advance or their own contributions. The second idea tested was an information sharing platform. Its form was not specified — whether e.g. a website or a regular newsletter will be used. The final design was to reflect the needs of the target group.

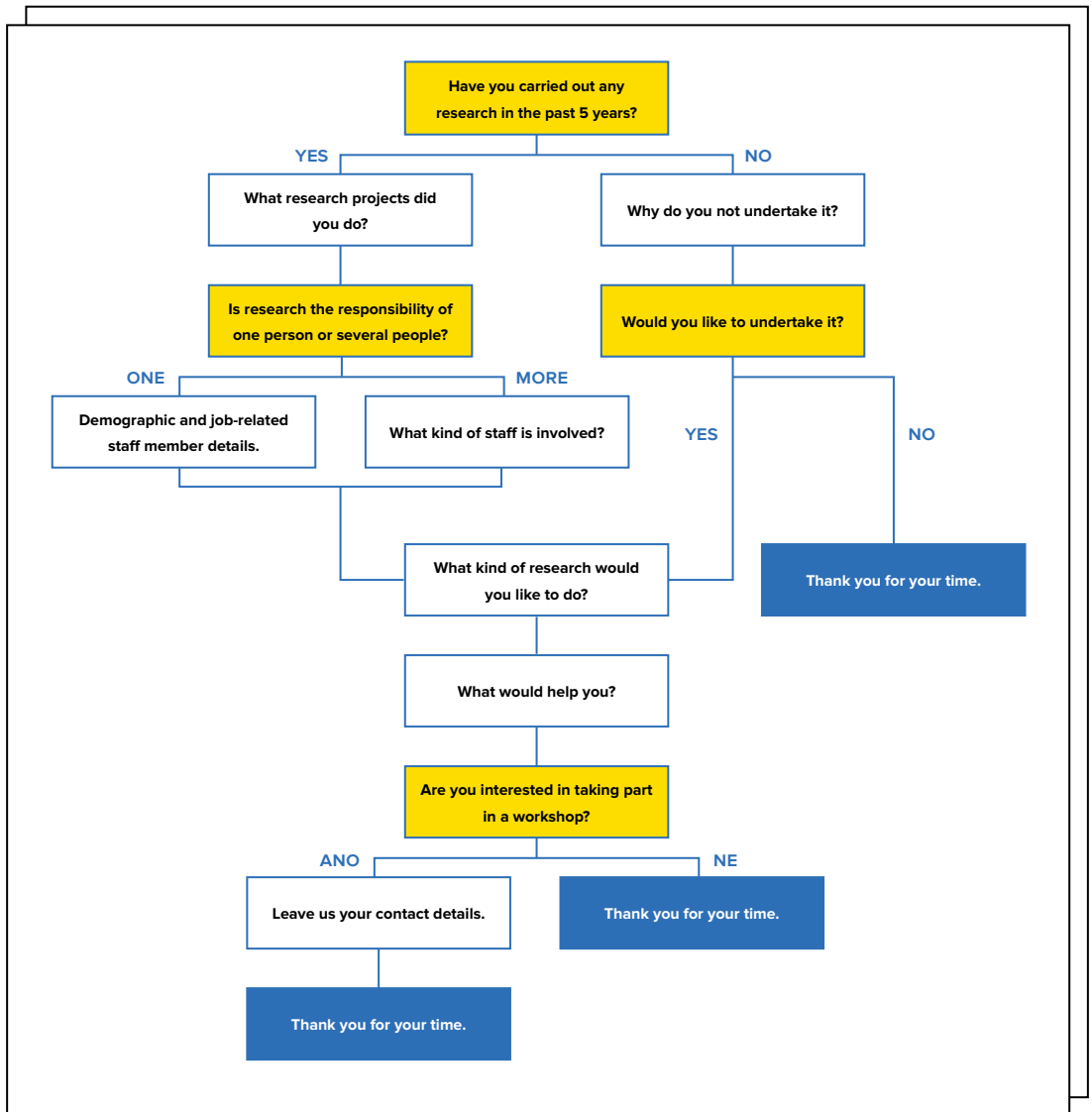


Figure 1

A chart of questionnaire flow options can help where the structure of the questions is more complex.

The findings revealed by the interviews and focus group finally convinced us that we need to change direction — all representatives of the target group interviewed were more interested in the broader context of improving services, rather than in research as such. They perceived research always in the context of user needs and placed particular emphasis on putting its results into practice. This was the reason (even though not the only one) why we decided to focus in the next phase on design thinking and service design which we saw as a better match for the needs of our target group.

DESIGN THINKING FOR LIBRARIES

As the initial mapping of the new territory showed, service design was in 2015 a relatively new area in the Czech Republic and in the context of libraries and public institutions in general. The project charter described the problem in the following terms: “How can the quality of library services in the CR be improved using participatory design? Experience from foreign countries highlights the fact that it is an approach that has a real impact on the way services are set up in an institution and their continuous improvement and development. There is presently no institution in the Czech Republic that deals with service design in libraries in a conceptual way.”

We thus formulated our *design challenge* as follows: “How might we enhance awareness of service design methods among librarians?” Given the results of emphatic research, the project content continued to consist in a conference supplemented with issuing a set of cards describing the selected methods. The project was aimed at promoting effective improvement of library services in cooperation with users. This was envisaged as a consequence of increased awareness of service design methods.

35 methods for better services

Design thinking makes use of tens of methods taken over from other fields. The approach to the design process, i.e. the procedure for solving a problem, used by agencies and researchers differs. When creating the set of methods, over 100 methods were mapped and described. The criteria for including them in the set consisted in their representation in the sources and their applicability in the library context. The 35 methods selected were divided into four phases that appeared to be common to all approaches to the design process examined and that also corresponded with the way innovations are understood in libraries. These phases were labelled as Learning, Analysis, Design and Testing.

The texts describing the methods were commented on by nine specialists from the field of design, innovation management and library practice. The comments often concerned missing references to sources, insufficient information about the methods and the fact that a template was needed for some of them. The set of cards included a brief information brochure providing a few basic tips for conducting a survey, but this did not address the issue of insufficient information in a satisfactory way. There was a need for the entire design process to be explained in clearer terms.

The main inspiration sources for the 35 methods for better services include in particular:

- ▶ Adam Hazdra et al.: *Skvělé služby: Jak dělat služby, které vaše zákazníci nadchnou*
- ▶ Bella Martin and Bruce M. Hannington: *Universal Methods of Design: 100 Ways to Research Complex Problems, Develop Innovative Ideas, and Design Effective Solutions*
- ▶ IDEO: *Design Thinking for Libraries: A Toolkit for Patron-Centered Design*
- ▶ Jakob Schneider and Marc Stickdorn: *This is Service Design Thinking: Basics, Tools, Cases*
- ▶ IDEO Method Cards: [ideo.com/work/method-cards](https://www.ideo.com/work/method-cards)
- ▶ Service Design Toolkit: [servicedesign-toolkit.org](https://www.servicedesign-toolkit.org)

35 METHODS FOR BETTER SERVICES

About the cards

We would like to know how you find working with the “35 methods for better services” cards.
Thank you for finding the time to answer the following 3 questions.

Would you recommend the cards to your friends?

I definitely would not recommend it
1 2 3 4 5 6 7 8 9 10 I absolutely would recommend it

What did you last use the cards for?

What do you miss to be able to put these methods into practice?

We will appreciate any comments or queries.
You can indicate your contact e-mail below.

About you

We will appreciate if you tell us your name so that we can link your answer with a specific person.
But if you do not want to, you do not have to.

Name and organization: _____

Contact: _____

Figure 2 Questionnaire created using Google forms is available at bit.ly/35metod-feedback.

The continuous feedback collected through the online questionnaire with *Net Promoter Score* scale and open questions for feedback also pointed to similar problems. The question “*What do you miss to be able to put the methods into practice?*” was responded to with answers such as: case studies, instructions explaining how to use the cards, more information and references.

SERVICE DESIGN IN LIBRARIES

Thanks to cooperation with the University of Oslo, we were able to respond to these issues. The aim of the project planned to extend over a period of several

months was to map the use of design thinking in libraries, to expand and modify the card set and make it available online.

35 methods in a new version

When working on adapting the card set, in a team comprising three members, we organized three *ideation workshops*, two with students and researchers at the University of Oslo and the third one with students of KISK. These meetings were aimed at looking for ways of presenting the design thinking methods to non-designers. A broadly framed question was intentionally not limited to a website solution, but was trying to pinpoint the essence of the problem.

Workshops in Oslo and Brno brought similar results even though there were slight differences in the way they were conducted and the participants' knowledge and experience varied too.

The following problems were most frequently mentioned:

- ▶ I don't know why I should use the method — what benefits will it bring?
- ▶ I don't know what other methods I should use and when
- ▶ I don't know what data I need and how do I get it
- ▶ I need a comprehensible and clear procedure to follow
- ▶ I need further information
- ▶ I don't know what the English name of the method is when I want to search for further information

A number of suggestions concerning the structure and possible content were generated at the workshops:

- ▶ an explanatory dictionary for non-designers
- ▶ extended instructions for individual methods
- ▶ templates for application of the methods available for download in Czech

How did the ideation workshop proceed?

Different groups of people meet at the ideation workshop to discuss the problem together. The goal is to encourage the participants to come up with a host of ideas based on the data provided by the workshop organizers. Ideation workshops are usually not as short as the one described here; the usual duration is one to two days. There is normally also a higher number of participants.

The schedule of the Brno workshop was as follows:

Beginning (5 minutes)

- ▶ presentation and welcoming
- ▶ explaining the workshop agenda and schedule

Learning about the problem (40 minutes)

- ▶ (5 minutes): introducing the first part of the workshop where participants should work together to learn about the problem
- ▶ (20 minutes): brainstorming — main question: What would help you understand the method outlined on the card?
- ▶ (15 minutes): affinity clustering — aggregating learnings into categories generated in the course of the sorting

Break (10 minutes)

Ideation of possible solutions

(30 minutes)

- ▶ (5 minutes): introducing the second part of the workshop
- ▶ (10 minutes): individual brainstorming of at least 4 possible solutions — main question: Anything that might help address the problems identified in the first part. We do not limit ourselves to the cards, a website or any other form of solution.
- ▶ (10 minutes): presenting the solution to other participants and merging of similar ideas
- ▶ (5 minutes): evaluation of the proposed ideas using post-its — everyone has three votes that they can award to the best ideas

Conclusion

- ▶ (10 minutes): group evaluation of the workshop, closing speech and expressing thanks

Participants: 3 female and 2 male students of KISK

- ▶ overview of pros and cons of individual methods
- ▶ case studies (emphasis on real use of the method in practice)
- ▶ highlighting the succession of individual methods in the entire design process
- ▶ opportunity for further creation and sharing of content by users themselves — knowledge basis, possibility to add own examples from practice and to facilitate communication in a community interested in improving services
- ▶ making the selection of methods easier by applying pre-defined criteria

We tried to incorporate into the proposal within the time given as many suggestions from the ideation workshops and the continuously gathered feedback as possible. We paid close attention to expanding the labels for individual methods and in particular to their linking to the case studies that were gradually collected both in the Czech and Norwegian context. Further descriptions of individual methods, English equivalents of their names and templates for their implementation were added on the website. We took good care to make sure that individual methods are clearly embedded in the design process. It was also important to align user requirements with technical possibilities.

Thanks to the feedback and a deeper understanding of the design process in practice, we also modified the content of the card set. The number of methods in the set remained; there are still 35 methods but some methods were replaced with new ones — after tens of interviews with librarians and feedback from owners of the first version of the card set we believe these ones to have a better potential in the library context. A Design process card was added to the printed version. This card together with this publication replace the original brochure and should provide answers to the questions concerning the design process.

The Pábení agency helped us with the content strategy of the website and the first wireframes (simple drawings of website architecture). Our cooperation was started with a design workshop aimed at the first proposal of website information architecture. The designs generated at the workshop were further worked on by UX designer and graphic designer Ondřej Machart with whom we were refining the website models based on continuous *user testing* with the target group. The user testing indeed brought the greatest benefit for the website design — it was right in the initial phase that we thanks to the feedback from libraries several times substantially changed the way case studies are presented on the website.

THE DESIGN PROCESS NEVER ENDS

Design process is a cycle of ceaseless iteration — the phases of learning, analysis, design and testing constantly take turns and can even take place simultaneously.

During the course of our project, we apparently returned once again to the beginning and substantially changed direction. Using the design jargon, we would say that we went through a number of iterations.

- 1 In case of Libdesign, the first iteration resulted in a radical turn and change of the aim of the project — moving away from the issue of providing support to library research to the concept of improving services.
- 2 In the following cycle we created a set of Libdesign cards that was tested on Czech and foreign audience and, using the feedback, we introduced the second version of the cards that we already “launched in the market”.
- 3 In the third iteration, we concentrated on an online version of method cards, on collecting case studies from the Czech context and confrontation of our methodology with methodologies used by our colleagues at the University of Oslo. Thanks to this phase, a website, a book of case studies and the third version of the cards were created.

Iteration means repetition of the cycle in a changing environment. At the end of each iteration cycle, there is a product or a service for which you gather feedback. This feedback is essential for further iteration — it can help change the course of service development, implement new impulses from users or even change the goal or expand or narrow down the project target groups.

The team that worked on the project

Original APLS project: Alena Chodounská, Pavla Minaříková, Ladislava Zbiejczuk Suchá, Gabriela Šimková, Martin Horák, Roman Novotný a Jiří Xaver

Project that received the grant support:

Alma Leora Culén, Andrea Gasparini, Pavla Minaříková, Ladislava Zbiejczuk Suchá a Roman Novotný

Information about KISK

The Division of Information and Library Studies (KISK) is an academic unit at the Faculty of Arts of Masaryk University. It focuses on studying the people – information – technology relationship and instruction is to a large extent carried out in a project-based format closely linked to practice. The composition of courses in the follow-up Master's degree study programme is determined by three profiles. One of them is Information Service Design.

Website:

kisk.cz





RESEARCH

Author: Alma Leora Culén, Andrea Gasparini

Design Thinking Processes: Card Methodologies for Non-Designers

INTRODUCTION

Design and designers' approach to problem solving has become an important direction for fostering innovation. It had a significant impact on business innovation strategies, management, and practices (Carlgren, Elmquist, & Rauth, 2016). Traditionally, design-led practices were introduced into private and public organizations through joint work with design consultancies. One of the most influential design and innovation consultancies was, and still is, IDEO¹. Several actors from IDEO had the instrumental role in spreading this design-led form of innovation, e.g., Tim Brown through his book *Design Thinking* (Brown, 2009), or David Kelley, one of the founders of the design school at Stanford University (d-school²). D-school is built on and operates according to design thinking principles that combine desirability, feasibility, and business viability into a successful user-centered innovation and learning practice.

1 www.ideo.com

2 dschool.stanford.edu

As design thinking gained traction, designerly ways of acting and thinking have also penetrated other fields, for example, interaction design or information sciences. The term 'designerly' was first used to describe and understand how designers work. Today, it also implies work by non-designers, such as human-computer interaction researchers and practitioners, who engage in design practices. To support designerly ways of thinking and acting, diverse designerly toolsets have been proposed. In their paper *Designerly tools* (Stolterman, McAtee, Royer, & Thandapani, 2009), the authors try to explore the nature of these tools, and how understanding designerly tools better can help to build more successful designerly practices. One of the main findings presented in their paper is that tools essentially have a dual nature: they either support synthesis (tools that are intended to bring things together, regarding the artifact under construction) or

analysis (tools that help explain and understand the process, i.e. are relevant for designers). The authors also claim that people with actual design education and experience prefer tools that aid synthesis. These tools, while usually easy to understand, are difficult to master by non-professional designers. They are more like instruments that need to be in the hands of a highly skilled person, a design craftsman, in whose possession they become useful, efficient and purposeful. On the other hand, researchers often prefer tools of a more analytical nature. This same division seems to apply to the context in which the tools are developed. That is to say that if a tool was developed in research settings, it is more likely to support analytical thinking, and if it was developed by a designer or a design community, then it likely supports synthesis to a larger extent.

As much of the work with design thinking processes happens in cross-disciplinary teams, the team composition, along with the choice of tools and techniques, will have a large impact on the success of the process. When working with teams composed mostly of researchers (non-designers), we have found that it is best that tools used during design processes be semi-structured (Culén et al., 2016). Too much openness and there may not be enough support for synthesis and abductive thinking, and too much structure may hinder novel idea generation.

In this chapter, we select a specific type of tool, frequently used by non-designers to aid design-thinking processes: cards. The chapter addresses the use of cards in design thinking teams, where designers are typically non-professional designers. That is to say, they do not have educational background in design, but come from disciplines such as human-computer interaction, information sciences, or have other professions altogether (such as librarians, like in the case we present). The case that we describe focuses on designing for libraries and card-based methods and methodologies to support the design of innovative library services and products using design thinking. The format that we chose for exploring the use of cards was a workshop. The chapter shows how the workshop was designed in order to make this tool exploration meaningful, while at the same time demonstrating the basics of design thinking.

CARDS AS A DESIGNERLY TOOL

Design cards are *tangible* objects with characteristics that set them apart from other tools suitable for design. First of all, they represent a very *familiar* format of engagement, often with positive associations from early on. They *do not* necessarily *require any technology* (although there are apps with design cards). The *transparency of content* representation (visual immediacy of what is on the card) *and movements* (manipulation with cards while in use) make them suitable shared objects for collaboration when working in design teams. The cards can be used to introduce new information, elicit information, inspire, structure processes, and

more. Consequently, they *can be used in all phases of a design process*, from initial ideation through ongoing concept development to evaluation. In the light of the discussion in the introduction, it is easy to see how they can *facilitate* both *syntheses* (e.g., re-combining individual cards to create new ideas) and *analysis* (e.g., categorizing and assigning values, meanings, interpretations).

As design thinking processes are nearly always conducted in teams, the approach needs to be inclusive of all team members in order to be effective. That is to say, everyone participating in the process should be active, and in order to be active one needs to understand other team members, as well as the process itself. One of the reasons in favor of using cards, due to their familiarity and transparency, is that they allow participants to *create dialogical spaces* (Krippendorff, 2006) where a “common” language and understanding among the team members is formed. This dialogical space ultimately helps the team to address and solve problems together.

In their paper (Wölfel & Merritt, 2013), the authors describe a study of 18 different card-based tools through which they tried to understand how exactly these benefit designers and design processes. Their efforts resulted in the identification of five dimensions across which the examined card tools differed. Those were:

- 1 *the intended purpose* and the scope of cards (general purpose, such as method cards, or context specific, such as inspiration cards),
- 2 *duration of use* and placement in the design process (anytime or for specific phases of the design process),
- 3 *system or methodology of use* (the same set of cards can typically be used in several different ways, e.g., forced association with a specific card, or card sorting according to some criteria)
- 4 *customization* (many sets require no customization, while others offer an option to select features) and
- 5 *formal qualities* (related to what is depicted on cards, e.g., text, image or both).

In general, when considering a new design project, a design team has an option to include cards as a designerly tool for their process. Harrison and Tatar expressed common feelings around method choice as “Design methods are like toothbrushes. Everyone uses them, but no one likes to use someone else’s” (Harrison & Tatar, 2011). This feeling may be even stronger around choices of cards because there are many options and decisions to be made. If cards are chosen as a tool, the team needs to choose for what purpose they would use the cards, for how long, in which way and so on. The team also faces the choice of using an existing card set, or making a new set. This last choice is also guided by the amount of time that the team has at its disposal for the project, needs, knowledge and experience of team members, expected outcomes and other, sometimes contradicting, factors. For

example, a novice team is more likely to choose proven, existing sets of cards. More experienced teams often make context and purpose oriented cards themselves, see (Culén & van der Velden, 2015), where the authors also suggest how to make such cards. It is not frequently mentioned in the literature that multiple sets of cards can be used during the design process. Actually, sets that support analytical thinking and sets that support synthesis may work well in combination, in particular for teams with less experience.

For us, the authors of this chapter, exploring different sets of cards and using them in design processes for libraries has been a rewarding experience. Apart from making our own cards when working on specific projects, we love to use existing card sets, in particular when working with student and novice design teams. It is usually mentioned in the literature that cards facilitate collaboration, but we have seen the evidence that they also facilitate mutual learning, as well as help increase creativity in design processes. They are great tools for workshops and future workshops, explorative sessions (Culén & Gasparini, 2014), interviews (Culén, 2015), service design and design thinking processes for educational or product development purposes. Our experience further indicates that using multiple sets of cards, supporting both analysis and synthesis, may be beneficial.

In summary, we consider cards to be a good tool choice for supporting designerly practices in general, and design thinking processes for libraries in particular. That is because they can support the building of everyday creative practices within libraries, where librarians work on their own in non-professional design teams, or as a part of a professional team. The threshold to use cards is low; they are very easily accessible and familiar to all. Furthermore, they are tangible, transparent and, at the same time, versatile. They can be containers of information, instructions, ideas or inspiration, and thus, support both the analytical and synthetic parts of design processes. They open dialogical spaces, where common language and understanding among team members is shaped.

USING DESIGN THINKING AND SUPPORTING IT WITH CARD METHODOLOGY

In what follows, we would like to provide a concrete example of how cards can be used in a design thinking process. We aimed at trying two sets, one supporting predominantly analytical and the other synthetic thinking modes. For this purpose, we chose a workshop format. The workshop was tailored for library staff and was to be held at a library. The design task for the workshop was to re-design the library welcome area. The aim of the workshop, though, was to explore how to use cards when working with novice teams with no to moderate experience with design thinking methodologies. The participants were to use two sets of cards each, starting with either inspiration cards or method cards first (i.e., synthetic or analytical

Tasks	Activities
1 Inquiry 45 minutes	Chose the approach: contextual inquiry, ethnography, interviews, and other modes of inquiry Observe the main welcome and reception area of a nearby place (hotels, theaters, etc.) Observe and document (photo or otherwise) interesting details, the desk, the signage, information available
2 Map it 45 minutes	Giga-mapping Place all you have learned and already know about reception areas on a large map (do giga-mapping — no sorting, thinking, grouping — broad and overlapping systems)
3 Ideate (divergent thinking) Define (convergent thinking) 60 minutes, switch cards after 30	Cards, the first type Cards, the second type Even though the cards are to be switched, you can go back to the cards you started with or freely shift between them during the second period
4 Prototype 30 minutes	Low fidelity rapid prototyping Explore the sub-problem defined at the end of the previous task through rapid prototyping

Table 1

thinking). At the end of the workshop, they were asked what order they preferred, and whether they thought that both kinds of cards were useful in the process.

The design task, as mentioned, was that of re-designing the library’s welcome or reception area. However, the location of the workshop was changed to the center of the city, and it took place at a commercial venue. Thus, the library reception area re-designing was replaced by re-designing any nearby reception area. This change is mentioned here, however, only to say that many factors can change before and during a workshop and in getting ready for the workshop, one needs to be prepared for such changes.

At the workshop, we found out that among fourteen participants, diverse disciplinary backgrounds were represented (librarians, people working with archives, researchers, and even one professional designer). Some had previous experience with design thinking processes, but many were coming to the workshop to learn about the approach. The plan for the workshop included typical phases of the design process (inquiry, ideation, definition and prototyping).

We chose cards for the phases of ideation and defining the problem to solve, see Table 1. Other activities, such as getting to know participants, introduction of design thinking, discussions, constructive breaks, lunch etc. are not included in the table (but need to be planned for). Since the workshop was of an exploratory nature, mostly related to a methodological inquiry into cards as a tool for design thinking, we dedicated little time to prototyping and evaluation. We have tried to strike a balance between exploring different sets of cards and implementing a design thinking process.

Inquiry

The purpose of this step is to find out about the problem space, but also to observe what is being done there. Design thinking is a user-centered approach and it is important that the design team develops an understanding of how welcome areas work for users. Many call this step “develop empathy with users”, as this step is seen as crucial for the process outcome. Several ways of doing the inquiry are possible, such as shadowing, interviews, observations, mystery shopping etc.

The workshop participants selected very different places for their inquiries: a courthouse, a theater, a shopping mall and the building of the Ministry of Social Affairs. They were instructed to document the inquiry process through notes and pictures, but they were free to choose the way of doing it.

Giga-Mapping

Often, some sort of mapping is used to visually communicate and analyze input from inquiry. Diverse mapping techniques such as affinity mapping and mind-mapping can be used. However, we have selected a newer technique, giga-mapping (Sevaldson, 2011). As the name suggests, giga-mapping is an extensive mapping across multiple layers and scales, investigating relations between diverse observations and knowledge that the team gained, or had already possessed. The map gives a holistic overview of the design space. The mapping itself allows participants to get immersed in the complexity of the situation that they are designing for, and identify the right problem to solve. Giga-mapping is often messy and time-consuming. The workshop variant of giga-mapping was simplified, as the time was limited. The following key principles of giga-mapping were kept³:

- 1 Map out all the aspects of the problem that you see
- 2 Any details can be relevant
- 3 Avoid hierarchies, but include all the layers
- 4 Write and draw, talk less or later.
- 5 Use colored makers
- 6 Avoid post-it notes until done, then use them for analysis

3 Freely adapted from the site: www.systemsorienteddesign.net



Figure 1 The image shows the teams at work. Their finished giga-maps are taped to the walls, remaining accessible during the rest of the workshop.

When all the teams accomplished the giga-mapping task, their maps were taped to the wall. The participants could then access them while doing other tasks during the workshop. Giga-mapping, like cards, is visual and accessible to all, and by mapping extensively and broadly, extends the easy-to-observe boundaries of the problem space. The lack of linearity and the messiness of the mapping process points towards supporting synthesis more than analysis.

Cards as Methods to Ideate and Define

During the workshop we used four different types of cards, see Figure 2. Two of these were of the same type, design method cards, made specifically to facilitate design thinking for libraries. The first set was from LibDesign (Zbiejczuk Suchá et al., 2015), and it contains 35 cards grouped into four categories: learning, analysis, design and testing. Each card focuses on one method. One side of the card gives a visual overview of the method followed by a written explanation, while the other side describes the method in a step-by-step fashion. The second set was fairly similar, designed by the Modern Human (Modern Human, 2016). This set also provided procedural method cards in four categories: immerse, inspire, imagine, and invent. Currently, the set has 35 cards as well, but additional 35 will be added during 2016. Both LibDesign and the Modern Human are planning on digitalizing the cards.

The third set of cards was developed as part of the AT-ONE service innovation project, see (Clatworthy, 2011a). The card set consists of service touch points (points of service where the provider and the customer meet). Touch points can be used to visualize customer journeys through the service. They also come with six method cards, providing different ways of using the set. For example, one could use a single touch point and make participants come up with forced associations on the theme of the card. Alternatively, one could look at different ways of placing the card on a customer journey or asking questions such as what



Figure 2 Four different sets of cards in use during the workshop, from top left: Design with Intent, LibDesign, Modern Human and AT-ONE cards

happens if this touch point is removed from a customer journey. The last set was Design with Intent (Lockton, 2010), consisting of 110 cards. These are organized into seven design covering perspectives, or lenses, such as architectural concerns, error-proofing, interactional, ludic lens, (a)-symmetry, cognitive lens, Machiavellian lens, and finally security lens.

Prototyping

As stated earlier, prototyping was included just to illustrate the process of design thinking. The session was short and most teams managed to sketch or make only one or two prototypes. However, one set of cards, AT-ONE was very easy to work with in this phase, and by simply reordering or replacing touch points on a customer journey, it was possible to generate several customer journeys. Figure 3 shows some of the rapid prototypes made.

DISCUSSION REGARDING THE USE OF CARDS

Even though teams were composed of non-designers (with one exception), and the welcome area was not a library one, everyone was able to experience and

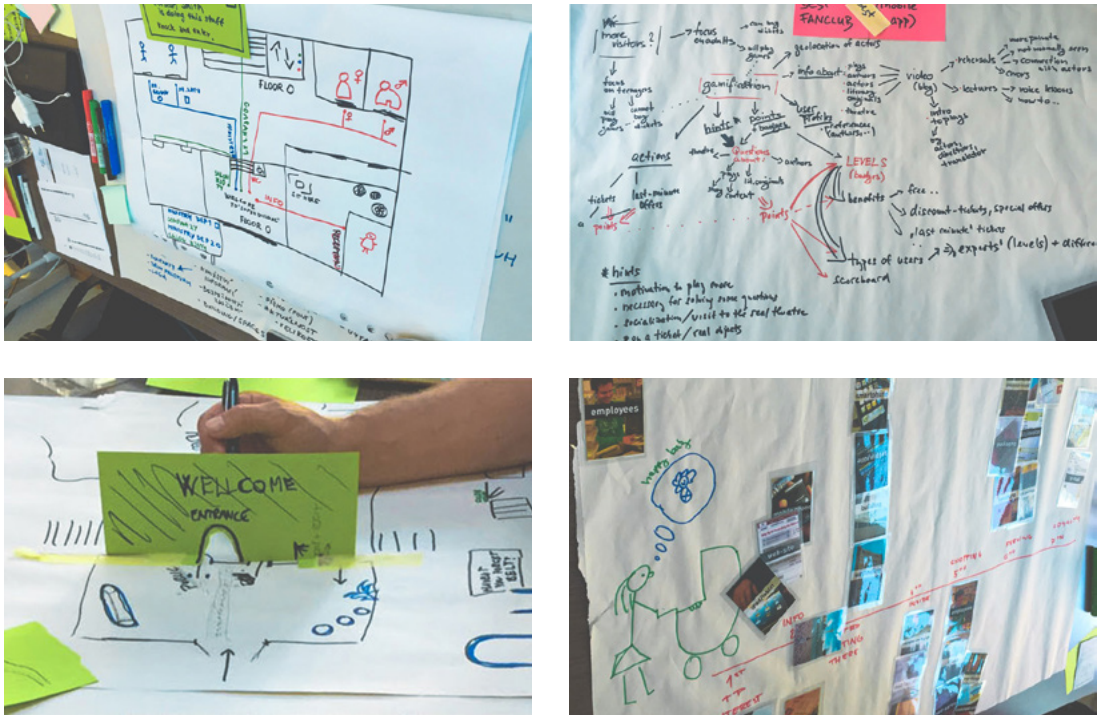


Figure 3 One prototype from each team: navigation at the Ministry of Social Affairs building, the best theater fan app, entrance to the courthouse and finally, a user journey with a customer at a shopping mall

understand phases of the design process. The participants were able to work with both types of thinking (analysis and synthesis) effectively and were able to create meaningful prototypes. This clearly demonstrated the power of the approach, particularly to those who had no previous experience with designerly ways of thinking and acting. To support these claims, we provide four vignettes, describing the process different teams had. The vignettes use the participants' voices but are not the exact transcription of what they said when they presented their work. Rather, the stories have been shortened (by the authors) and convey only the part of the process related to cards and prototyping.

Vignette 1. The courthouse welcome area — team 1 (AT-ONE cards, followed by the Libdesign cards)

We have used a stakeholder map method card to start exploring the experience of passing the security gate at the courthouse. After drawing the map, we used a service journey method card and personas method card to visualize the passage through security. Then we had a dialog around our personas' experiences. We made some short videos showing the feelings and actions of our personas. Then we considered the relations between those. What each persona thinks and

feels, what they hear and see, what they do. Then for each one, we assigned a value and tried to score for the most painful issue. This way, we found out that the gate and its non-transparency, not knowing what is behind, was the worst point. We found two problems with it that interested us. We prototyped both and decided we wanted to go with the second one. Then we generated many and broad ideas on how to re-design the security gate. We found that our method cards, although they had four different categories of methods, had a lot of overlap. They were sometimes too similar. But overall, they were helpful.

Vignette 2. Navigating the building of the Ministry of Social Affairs – team 2 (using the Modern Human cards, followed by the Design with Intent cards)

We looked through the method cards and chose the post it notes method called “6-8-5”, and then a card with the method “How. Now. Wow!” We made 2 different prototypes, but due to the shortness of time, they showed just some aspects of what we had considered earlier. We focused on way finding and signage in the building. We wanted to clearly signal when you could come to visit an employee by making signs for “Knock and enter”, we wanted to use colors, pictograms, and floor areas for guidance: follow the red line for the ministry, the green for other businesses in the same building and yellow for people. The method cards were very helpful and guided us in how to deal with ideas and made us think of a lot of stuff. They helped us be really generative and time effective, all together. The set with different lenses could be used more in evaluation. With experience, one could decide when to use one and when the other set.

Vignette 3. Get youth into theaters! – team 3 (Design with Intent followed by the Modern Humans cards)

The theater was closed, so we could not get in. But, we definitely thought that it should be more than a theater, a sort of a community center. We imagine that mostly middle-aged people go there, but we wanted to focus on teens and children and how they could become motivated to get more involved in the theater. We started with the ludic lens, and since we did not get to see the actual, physical welcome area, we decided on making a digital one. We thought that we would work with gamification, focusing on these users. We decided to make a mobile app, as we thought it could give more immersive experiences. Our prototype ended up giving users points that could be exchanged for fun performances, lunches with actors etc. The ludic lens was inspirational, and the method cards that came after were not that useful, as lots of ideation process had already happened. Thus, we think that it is better to use method cards at the start.

**Vignette 4. New mom's experience of a local shopping mall — team 4
(Libdesign cards followed by the AT-ONE cards)**

We tried to look through the method cards and find something that fits. The card we started with was the Experience Map. It led to use personas too. We decided on a young mother persona in the shopping mall. She wanted something for her newborn. The persona card was good. Then we used the service design cards for constructing the customer journey. We could easily exchange cards and discuss which ones are better for the journey and then we could discuss some particulars of it. We decided to go for making the prototype for the phone app. Why have the app in a phone? The reasons include diverse bonuses, the geographical proximity of the mall to the place of residence, loyalty programs and the possibility of combining other offers from the mall (e.g., theater). We started with the service cards and they worked for us well as a prototyping tool.

Based on what the participants said, and what we could observe during the workshop ourselves, the teams that used method cards first had a more positive experience with both card sets. The teams that started with method cards used them during the entire ideation and definition process. Switching to inspiration cards was easy. However, starting with inspiration cards and then switching to method cards did not work as well. Once the ideation started, for one team, switching to thinking about methods was not easy, see Vignette 3. The team, however, recognized the value of method cards and suggested their use at the start of the process. The second team that started with inspiration cards did not receive a card set that was appropriate for their design context. AT-ONE cards were made for service design, while the team was focusing on re-designing a specific user experience. This resulted in the team using predominantly their method cards (Vignette 1).

The same cards that team one could not use were experienced as very helpful by team four. In this case, the cards supported the task of designing a service for a selected group of users perfectly. The team then extended the use of the cards beyond the ideation and definition of the problem and into the prototyping phase of the design thinking process naturally and without being told to do so. The difference in the experiences with using AT-ONE cards by the two teams is illustrative of the fact that inspiration cards are more context sensitive and need to be context appropriate (Wölfel & Merritt, 2013). Method cards, as general purpose cards, can always be used. Designerly and experienced teams may have different experiences with inspiration cards than novice teams (Stolterman, McAtee, Royer, & Thandapani, 2009). For novice and somewhat experienced teams, it is a safer strategy to start with method cards. If synthesis is well represented within the team as a thinking style (for example, by having a professional designer as a member), method cards may be all one needs. However, synthesis is often underrepresented in teams of non-designers and in such cases a second set that supports synthesis may be beneficial.

In summary, more work can be done on exploring how card sets that support different thinking styles can be combined when working with novice and somewhat experienced teams. Our findings from the described workshop clearly indicate the benefits of starting with method cards. As one of the teams pointed out, with experience, one may find it fun and educational to combine different cards. The metaphor that comes to mind is that of a team becoming a master cook, with cards as ingredients, making for a great design experience every time.

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LIBRARIANS AS DESIGNERS

CASE STUDIES ON THE IMPROVEMENT OF LIBRARY SERVICES

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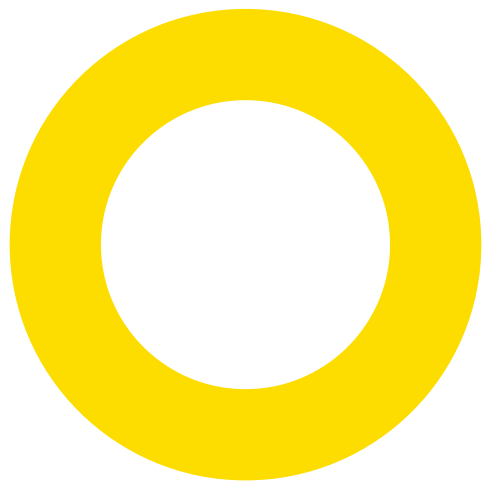
More information about the methods of design thinking can be found at www.libdesign.cz



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