Find a Book! Unpacking Customer Journeys at Academic Library

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Abstract—Academic libraries are especially poised to serve knowledgeable and technologically advanced user population: students and researchers. The technological advances are dictating significant changes for academic libraries. This paper is concerned with building awareness within the library around the need to re-think its role in academic life, its use of technology and willingness to co-innovate with users. The paper reports from four workshops that aimed to explore existing and future services offered by the academic library. Library employees, students and researchers were participants in all workshops. The participants were first informed about service design and its tools, and then engaged in creating customer journeys, using service design cards. The set of cards used was an of-the-shelf product, modified for the purpose, introducing images specific to the library and allowing for rating of services in terms of their importance. The paper reports on our findings from these workshops. One interesting finding is that librarians still focus mostly on physical space and personal services, such as organization of courses in the library, while students and researchers almost exclusively think of digital services, related to literature they need for their work.

Keywords—service design; service design cards; touch points; innovation; customer journeys; academic libraries.

I. INTRODUCTION

During the last decade, the Internet has been a game changer [1] for academic libraries. It created a challenge for academic libraries by providing access to articles anytime anywhere through, for example, Google Scholar and other open access publications sites catering to academic communities. In the past, the main issue with Internet access to academic literature has been the lack of credibility. In [2], credibility is considered as a multifaceted concept with two primary dimensions: expertise and trustworthiness. Academics have trusted for centuries the expertise of the library to provide good and credible information. Yet, the same are now trusting Wikipedia, Google Scholar, and similar, to provide them with credible academic information [3]. In addition to the Internet, the appearance of disruptive technologies, such as eBooks first, and tablets later [4]-[6], has posed further challenges. In combination with cloud computing, interested students and researchers are able to create their own collections of teaching and research materials, always at their fingertips. The libraries are practically forced to re-think their role in academic life, their use of technology and willingness to innovate.

An academic library is a place where serving academic cultivating, preserving community, and expanding knowledge is raison d'être. However, due to technological developments and changing habits of the academic communities, the services, as well as the ways of delivering them, are changing. The changes also imply the need and interest in ways of evaluating library services [7] and designing new ones. Looking through a variety of definitions and concepts regarding service and service design, see [8]-[10], we consider the following characteristics of a service to be useful also for discussing the library services: intangibility, heterogeneity, inseparability and perishability (IHIP). Intangibility is often cited as the most important distinction between tangible goods (products) and intangible services. For example, the help to a student by a librarian, in form of information, is intangible. Heterogeneity addresses the fact that services, even when the product obtained through the service is the same, for example, a book, is depending on different service providers and thus may be experienced in variety of ways. For instance, an experienced librarian may provide a different service and customer experience than a new librarian, when a customer inquires about a book. The experienced librarian may be able to offer similar titles, supplementary references etc. It is, thus, often difficult to achieve uniformity of the service delivery, a 'standard' service. Inseparability of service addresses the fact that it is impossible to separate the supply or production of the service from its consumption. The interaction between a provider and a customer in an act of offering/consuming a service may also be seen as an act of co-creation of the customer experience with the service, and thus, the customer may be identified as service co-producer [11]. Perishability of a service is addressed in the literature in multiple ways. Many consider a service to be something that happens in the moment and thus cannot be saved for later. For example, even though a student can borrow a book from the library for 4 weeks, the service takes place at the time of checking the book out. Alternatively, one may consider the service as ending at the time when the book is returned to the library. Similarly, in a new library database system, one may not be able to make certain inquires which were possible in the old database, and thus some services related to those may perish.

One fundamental attribute of services is that they have value only when they are used [12]. Other relevant attributes are trust, fast delivery (speed) and consistency of the service [13]. These attributes have a crucial impact on the customers' experience of a service, but do not have to be equally relevant for the provider. For example, Amazon has built on trust, while McDonalds on the speed of the service. Services offered by a private and public sector differ in some important ways. In the public sector, the motivation to innovate services or to co-create them with users is often reduced, since the public sector services are actually intermediaries between the state (the actual service provider) and the user [14]. This makes it more difficult to influence improvement of existing, or development of new services [14]. It is more difficult for providers to understand and evaluate customer's experience of the service [15]. Finally, public sector customer services design may involve some paradoxes [16] that are difficult to resolve. Thus, working with services in public sector may be more challenging than working with services within the private sector.

In this paper, we examine how the academic library views service design and co-creation of services with users. To this end, we have organized four workshops with library employees, students and researchers. Part of the time during workshops was used to introduce concepts from service design, as well as methods and techniques used in service design. This content is presented, in its condensed form, in Section II. The remaining time was split equally between creating customer journeys in today's library and exploring future services. The main tool used to create customer journeys was a set of service design cards. The use of cards and card sorting is common in human computer interaction; see for example [17]. More on specific cards used is also provided in Section II. The paper reports on tool modification in order to collect more meaningful data from workshops, as well as insights gained and lessons learned.

The paper is structured as follows: Section II introduces design thinking, service design, customer journeys, touch points and service design cards. Section III describes our case and presents the workshops. The discussion is provided in Section IV, and it is followed by a conclusion and future work in Section V.

II. SERVICE DESIGN

This section presents, very concisely, the material used as a theoretical background during the four workshops that were conducted in order to initiate the envisioning and rethinking process around services in the academic library.

A. Design Thinking

In contrast to analytical thinking in science, designers have developed another way of thinking, called design thinking. Design thinking involves building of new cognitive patterns to grasp multiple knowledge and multiple perspectives, related to the context at hand, that are to be synthesized and transformed into new products or services. It combines the empathy for the context of a problem, knowledge and understanding of others and designers' creativity in generation of insights gained around the problem. The entire process, including the translation of all insights towards solutions, often happens with stakeholders within the context of use. In practice, it is a method of finding solutions by going through certain stages, typically very similar to those of interaction design: formulate the problem, investigate it, brainstorm, make prototypes, chose one, implement and find out how well the solution solves the problem. Design thinking has also allowed designers to move from a post-production and branding place and become active participants in the making of new products and services [18].

Using design thinking in design of services offers a possibility to better meet customers needs [19], based on understanding of their behavior, motivations and other responses while interacting with services.

B. Service Design

It seems straightforward to define service design (SD) as a design of new services or re-design of existing ones. Design of services is not new; services have existed for millennia, but the recent popularity of service design may be attributed to design thinking approach to service design (see [18], [19]).

Service design differs from product design in the act of "doing" of the design [12]. Service design also differs from interaction design in that it uses more explorative ways to challenge the problem area, as opposed to interaction design with its more analytic approach [20]. Our understanding of service design is in line with that of Schneider:

"Service design is an interdisciplinary approach that combines different methods and tools from various disciplines. It is a new way of thinking as opposed to a new stand-alone academic discipline. Service design is an evolving approach; this is particularly apparent in the fact that, as yet, there is no common definition or clearly articulated language of service design". [21]

Ideally, the service design teams should include all stakeholders related to the service context, as well as service designers, and other professionals, as needed for a specific project. The first step in the process of SD, an equivalent to defining a problem space in human-computer interaction, is an agreement on the context and interests. Different research methods such as ethnography, immersion, shadowing, sensemaking methods such as mapping (including blue-prints, Giga maps and customer journeys), safaris, expert interviews and self-directed tools such as diaries are all part of the SD toolkit.

For the purposes of this paper, customer journeys and touch points are central.

C. Customer Journeys and Touch-Points

One of the most effective processes in service design is being able to visualize a service offered by an organization or a company using a tool called a *customer journey*. Koivisto explains:

"Services are processes that happen over time, and this process includes several service moments. When all service moments are connected the customer journey is formed. The customer journey is formed both by the service provider's explicit action as well as by the customer's choices", [22].

The 'service moments' Koivisto talks about are called *touch points*. Touch points, as stated above, comprise a customer journey and provide understanding of the service over time. They are thus a central aspect of service design [23], [24].

D. Service Design Cards

A good tool, helping to understand and address touch points in the initial stages of service development, is a set of service design cards. The card set that we chose was developed as part of AT-ONE method, a practitioner-based method for service-design, aiming towards maximization of the innovation potential at early stages of service design, see [23]. Clatworthy provides six different use contexts for the card set and evaluates the usefulness of cards in these contexts and in relation to their intended function. The cards were found to help with team building in crossfunctional teams. Further, they were found to be helpful in assisting with the analysis and mapping of existing situations, generating ideas for new solutions or approaches, needs elicitation and facilitation of communication. In addition, Clatworthy says that the cards "afford embodied communication and embodied cognitive processes", [23].

III. THE CASE

As stated in the introduction, our goal was to re-think services offered by the academic library. The establishment of User-Driven Innovation project in the context of academic library at the University of Oslo approximately three years ago, started us on a research activity concerned with investigation and experimentation around users' involvement in innovation processes within the library. We have considered students' potential as innovators [25], as well as the living lab approach [26]. In this work, with students as innovators, we have found that images facilitated initial communication well, and they helped established common understanding of the problem area. Thus, our experience was similar to findings reported in [23]. The natural course of action was to buy the card set from [23], as shown in Fig. 1.



Figure 1. A sample of SD cards [23], including cards describing the two ways in which the cards were used in pilot workshops.

The set was then tested in couple of pilot workshops focusing on the library context and using the cards in two different ways: to map touch points and to remove a touch point from a customer journey. We chose to focus on customer journeys only, the removal of the touch point was deemed too specific. We quickly realized that some library specific cards would be helpful. This resulted in a modified set of cards which included vital touch points for the library, such as books, e-books, academic papers. Furthermore, we introduced two non-touch point cards, a critical point and a decision point, meant to be placed next to the touch point card in order to provide a clear visual clue related to the importance of the card. Then the set was tested one more time and we found out that differently colored dots placed next to the touch point card would be more useful in providing a graded importance clues. In addition, we found that colored arrows could provide further visual information, helpful in visualizing choices in the flow of the customer journey, again graded by importance. Thus, the set of cards used in workshops consisted of the original deck, plus added touch and non-touch point cards as described, and many dots and arrows in different colors, see Fig. 2, and Fig. 3 - Fig. 6, showing the cards in use.



Figure 2. Cards suitable as touch points related to library services. Dots helped visualuize degree of relevance of a touch point, and arrows the flow.

When the cards were ready, we organized a series of four workshops, about 2 hours long, with similar set up. During the first hour, we introduced the concepts presented in the Section II: service design, design thinking, customer journeys, touch points and touch point cards. During the presentation two simple questions were asked in order to engage everyone in thinking about the library and innovation, and to invite the participants to be creative. The two questions were: "Can you give an example of a library service?" and "What does innovation in the library mean for you? Give an example."

During the second part of the workshop, service design cards were used to discuss a specific task. The task was to create a customer journey based on the following service provided by the library: find the literature relevant for a research or student project. When the journey was mapped, the new task was to envision this same journey in the future. During the first workshop, the same task was repeated using visual language in the making [27] for service design. This has not been done in other workshops.

The choice of the task was motivated by the sense of difficulty that users have when considering the role of the library in this particular process today (as explained in the Introduction, users often search Google Scholar and similar sites). It turned out to be a good choice for all participants. In fact, one of the researchers in the workshops admitted that she did not know that e-books purchased by the library are available for all university users, free of charge. The library employees could see that users did not have easily available information on this important new service, e-books access.

The same questions and the same task were used in subsequent workshops. While the first workshop involved many library employees, the remaining three workshops were predominantly composed of students, with at least one researcher and a library employee present.

Our main analytic tool was photo documentation [28]. A large number of photos were collected during workshops, so that we could analyze similarities and differences in processes with different groups, as well as how they made their journeys, for both present and the future service.

A. The First Service Design Workshop

The first workshop was held in May 2013, with 25 participants. 17 participants were library employees (included library leaders, librarians, subject librarians, digital services management, digital services support, e-resources consultants, open access consultant and others), 4 were students and 4 researchers. The participants were divided into four groups of six (seven in one of the groups) people, each group having at least four librarians, a researcher and a student. All four groups had their own deck of cards, dots and arrows, a large sheet of paper, and colored pens. The participants took some time to become familiar with cards, to discuss them and negotiate both the touch points and how to proceed with thinking about customer journeys. After 10-15 minutes, all groups decided on what touch points they would have on their journeys. Changes in the order of touch points and discussions became faster, as common understanding got established. Soon, all groups started using arrows and dots, Fig. 3. In one case, the paper under the cards was used to mark new paths between touch points that arrows could not reach. Also, some groups felt the need for additional card or two, or to document the process. Those were made using Post-it notes on the fly, and participants (mostly library employees and researchers) took pictures with their own mobile phones, showing engagement and importance of the subject discussed for their own work.

Looking at journeys made, we could notice that multiple starting points were deployed, usually from the physical to the digital. If the journey started in the digital world, it generally ended back in the physical world, in form of a visit to the library. This shows that meeting up at the library in person was regarded as vital in order to gain access to services.

The journey making allowed for relating anecdotes around how library services can be experienced by users. For example, in one of the groups, a student related a story of being charged a fee after the return of a book, which was long past due. For the library, the charge, as a source of income or compensation, is minimal and insignificant. For the customer, it provided for a really negative experience.



Figure 3. The workshop in the library. Each small picture shows the customer journey made by one of the four groups.

B. The Second Service Design Workshop

In this workshop, only three bachelor students from interaction design course participated, and one library employee/researcher. The same program, as described above for the first workshop, was followed.

The difference between the customer journey made at this workshop, and those that resulted from the first workshop, was where the service start points were, see Fig. 4. For the three participating students, it was not conceivable to start the journey elsewhere then with digital interfaces as touch points. The only reason that they added the physical library in the journey was because the library employee wanted to introduce it. The students added the card, and then quickly added a critical point card, from which an arrow lead to the library building card (Fig. 4), signaling clearly that only in times of absolute crisis would they venture into the building.



Figure 4. The journey always started from the digital: PC, a tablet or a phone.

Asked what kind of crisis they are thinking of, they exemplified with network failure, or the library site being down. An interesting outcome of envisioning the future service was the "book-to-door" service, a delivery of a physical book at home address, for which they were willing to pay.

C. The Third Service Design Workshop

The third workshop was carried out in the context of a graduate course in experimental design, with 18 participants divided into three groups. The journeys made are shown in Fig. 5.



Figure 5. The three journeys and Post-it notes on new services.

In this case, too, all customer journeys (present and future) had starting points in the digital world. Similar to the previous group, as shown in Fig. 5, upper right image, the red dot was placed over the card depicting the building. Here too, the building became a touch point only in the case of an emergency. This group, however, would not opt for visiting the library at all, but would make a phone call instead.

Even though participants had ample time and seemed engaged in envisioning future services around finding academic literature, journeys they made remained quite conservative in terms of how far the ideas were from today's solutions.

D. The Fourth Service Design Workshop

The fourth workshop was also conducted with students taking a graduate course, but with ten students. The course had design and design thinking as a theme, thus little in terms of introduction was needed. We had expectation that these students would be more creative. This expectation was not met. The outcome was rather similar to journeys made in workshops two and three.



Figure 6. Students taking the course with focus on design and design thinking working on their journeys.

The use of the myths card is worth mentioning. A student related that she was afraid of visiting the library, since the library is a quite place, and she sees herself as being loud. She thinks that the library is not the right environment for her (see Fig. 6, the bottom right corner).

IV. DISCUSSION

After the last workshop with students, we felt that we have gotten much information on one hand, while on the

other hand, for further development of ideas, a different team composition and format of workshops is needed. The workshops have shown that the card set worked well. It indeed engaged participants in discussions around touch points, and served as ground for building common understanding. They served well as a visual tool for understanding today's services and envisioning the future ones. The added cards worked well, and the participants considered the use of color-coded dots useful. In negotiating the touch points, groups sometimes added touch points that some members of the group were not convinced needed to be a part of the journey (like the library building in workshop 3). Placing a red dot on that touch point gave it a meaning (emergency only, for example). The color-coding was done by negotiating the meaning of the color within the group, and thus, was not the same across all groups. Arrows were used similarly. The participants were not encouraged to use either dots or arrows in any way, but most groups found them to be helpful in visualizing the journey.

Although all workshops were including library employees, researchers and students, the first workshop was the one where library employees accounted for a vast majority of participants. The outcome of that workshop was distinctly representing the library view of its services. It was very interesting to observe that most suggestions for innovation had to do with physical space and face-to-face communication, even if later had to be done using video. Fig. 7 shows a sample of what library employees gave as examples of innovation during the initial part of the workshop. As it can be seen, several suggestions had to do with avoiding queue in the library, while equally many were suggesting a video call canter. Later, while thinking about touch points and customer journeys, variation in envisioned journeys was greater. Yet, it was evident that the decision power in negotiations around customer journeys clearly belonged to the library employees.

On the other hand, the remaining workshops strongly represented users' point of view. The journeys, both present and future, show mostly digital touch points and digital services. Even when they were not digital, like the 'book-todoor' service from the second workshop, they did not involve the library building or face-to face communication. Even in cases of emergency, as in the example from the workshop three, the students seem to prefer other forms of contact, such as the phone, over the visit to the library.



Figure 7. Post-it notes with answers to the question "What does innovation in the library mean for you? Give an example".

From what we could hear and observe during the workshops, the perception of what a service should be characterized by (intangibility, heterogeneity, inseparability, perishability) also differs between the library employees and the library users. The students in the workshops were in favor of automated online services, in part, due to the equality in the delivery of the service and its independence of either the librarian, or the librarian's perception of the user. The customer journey in the second workshop (see Fig. 4, in the red box), describes the aforementioned book-to-door service, possibly inspired by Amazon [29]. Even though the service delivers a tangible object to the door, it still eliminates heterogeneity. The heterogeneity was not the characteristic that students valued. The librarians, on the other hand, consider their knowledge as extremely valuable, but highly dependent on the inseparability of the service. While the explicit part of their knowledge may become part of some system, the tacit knowledge and the long and rich experience in working with academic community is transferable only at the moment of service delivery in the physical world. If this experience and tacit knowledge are not valued enough by users, this kind of service is indeed in peril of perishing. From the outcomes of the workshops we can see that value and meaning of IHIP characteristics of services needs to be further negotiated among the stakeholders. The gap that exists needs to be bridged by design of services that better suit user ways of doing things, but do not lose the extremely valuable assets that the librarians have.

V. CONCLUSION AND FUTURE WORK

The paper described the case of exploring the present and the future academic library services, focusing on finding literature relevant for some student or research project. Four workshops were organized. The first featured a large number of library employees, while the remaining three focused mostly on student population. The main tool for engaging stakeholders in the process of creating customer journeys was a set of service design cards, modified to best fit this very specific context. The process was photo documented.

First, we remark that that our extension of the service design cards was meaningful for our participants, as were the tasks. Several groups have explicitly and unsolicited mentioned that it was nice to be able to use the colored dots and arrows and 'grade' the importance of certain touch points. Only 2 groups have chosen not to use this possibility.

Our main finding shows that the library still focuses very much on physical services, while the students are nearly exclusively concerned with digital services. A very positive outcome of the whole process for the academic library is increased awareness of just how large this gap is and its recent commitment to engage in a long lasting user cantered project focusing on user experience and design of services with users.

The ideation and thoughts around new services that started in some of these workshops have already been carried a step further. One new service that helps find e-books has been designed and implemented. The future work involves participation in the afore mentioned project, which is now at its start, and deepening understanding of the role of humancomputer interaction research, its methods and techniques, in design of user experience and services for the academic library.

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