

Services Design in Academic Libraries and its Impact on University Community

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ABSTRACT

Purpose. The purpose of the paper is to study how service design is developed and implemented in academic libraries in order to meet the requirements of the university community in their educational, research and/or personal activities.

Methodology. The author aims to bring clarification to modern concepts, such as design thinking principles, process and methods to make them more understandable for the readers, and describe planning stages of the services design in academic libraries. The paper was compiled based on related literature review, observations, and findings from case studies

Findings. Detailed services design planning allows the libraries to foresee all possible difficulties and shortcomings of the planned library services, and thus sidestep these problems by considering all conditions in the initial stage. The primary goal of the services design activity in academic libraries is mostly connected to meeting library and information needs of the university community, and creating new library services for all situations (such as the current pandemic) that might be in great demand by library patrons, though they might not even realize it. Therefore, a special and in-depth study of the user behavior and feedback in certain library services is essential in terms of understanding patrons' requirements, and developing more innovative user-centered services for them.

Originality/value. The services design process and design thinking principles and methods are broadly discussed topics in modern librarianship, which make this paper competitive enough to analyze different points of views and find out one can be applicable in certain circumstances and/or environments. In this regard, the suggested tools and techniques can be practical for most young library specialists working in public services units of academic libraries.

Keywords: design thinking, academic libraries, service design

INTRODUCTION

Modern librarianship and library environment encompass wide ranges of technical and technological novelties, as well as new tools and techniques to facilitate the labor and tasks of librarians and information professionals. The types

and scope of the rendered information services have also been evolved and multiplied in concert with the requirements of the current information era.

In general understanding, information services can be differentiated as personal services, professional services, services that provide equipment for intangible value, services that handle money, services that handle data, industrial services, trade services, information and knowledge services, and software and system services (Wijnhoven, 2012).

Since this paper studies the aspects related to information services provided by libraries and information centers, let us take a brief look at their evolution. Public libraries first developed by emphasizing their bibliographical/archival role. The next service to emerge had the educational role. The first instance of government support for libraries occurred in the USA in the 1830s. Later, with the development of the industrial revolution, libraries' roles became more varied and encompassed the cultural function as well. The emergence of social science disciplines fostered the development of special libraries supporting the research function, the creation of new knowledge. The informational function, which is now the dominant function of information agencies, began with the urging of Melvil Dewey and Samuel S. Green, who encouraged assertive librarians to work with clientele to help them use libraries and their resources. Recreational reading as a library service started to be practiced with the emergence of the paperback book industry in the 1930s, and has evolved to incorporate a variety of recreational resources in such formats as CDs, DVDs, games, and Internet resources (Grover, Greer & Agada, 2010).

Information services' success requires library and information professionals to follow the steps of the information transfer cycle (creation, recording, mass production, organization, dissemination, bibliographic control, diffusion, organization by discipline, utilization, preservation) regardless of the technology that is employed. On the other hand, the academic librarians, at the core of their profession, are educators as well. Whether they are employed in public or technical service areas, the work of academic librarians is directed to helping students and faculty achieve academic success. A changing academic library environment requires librarians to innovate, discover, and implement new services. Librarians can add to their existing skills a new skill set drawn from instructional design, in order to develop a blend of traditional librarianship, information technology, and new design possibilities that foster them to become "blended librarians" (Bell & Shank, 2007).

The current paper defines the roles of academic libraries and librarians as creators and designers of services, and offers designing methods and tools to make these tasks more facilitated for library professionals.

DESIGN THINKING PROCESS, METHODS, AND TOOLS

There are different thinking styles, such as abductive thinking, deductive thinking, inductive thinking, critical thinking, design thinking, divergent thinking, convergent thinking, integrative thinking etc. (Curedale, 2019). The aim and

scope of the current study is to analyze the meaning and implementation methods of design thinking in the academic library environment.

There are different definitions of design thinking. Design thinking is about making things better and creating a catalyst for innovation. Design thinking is ideally suited to endeavors such as this that require moving from concepts to real, tangible outcomes (Brown, 2019) .

Another concept defining the essence of design thinking is as follows: “The challenges for innovation are located in the realms of “seeing” (our perception of the world is organized by solutions, rather than problems), “thinking” (the world is used to a static notion of “rationality”), and “doing” (the world has set ways of dealing with novelty and innovation)”. Thus the frame creation is seeing, thinking, and doing things differently from before, which defines the design as the different way of thinking (Dorst, 2015) .

What makes design so captivating is that the principles can be applied to a range of practices and performances. In this regard, there are some ways that academic librarians incorporate design thinking into their work and in doing so contribute to their growth as professional librarians.

There are three basic elements at the core of design thinking:

- The ability to put oneself in the place of the user of the product or service in order to understand how the user can receive the optimal learning experience;
- A willingness to thoughtfully and creatively move through a series of gradual changes in developing a product or service and use this prototyping method to arrive at an optimal experience for the user;
- A commitment to both formative and summative evaluation in determining how well a product or service meets the needs of the user, and then making the necessary adjustments to improve the performance of that product or service to ensure a good library or learning experience for the user (Bell & Shank, 2007).

Design thinking is a creative approach, or a series of steps that help librarians design meaningful solutions for their library. If you think about it as a Venn diagram, design thinking solutions exist at the intersection of three factors: desirability, feasibility, and viability. In other words, when the solution is desirable, financially viable, and technologically feasible, innovation happens in overlap of these factors (Design thinking for libraries: A toolkit for patron-centered design, 2015). Design thinking is a process by which academic librarians examine their services and resources to identify ways in which these can be improved and enhanced to reduce barriers to access for students and faculty.

There are three phases of design thinking process:

- Inspiration – framing a design challenge and discovering new perspectives on the opportunity;
- Ideation – generating ideas and making them tangible;
- Iteration – continual experimentation based on user feedback.

- The design thinking approach is patron-centered (starts and ends with the patron's needs), based on learning by doing (mobilizing people, stepping outside of your comfort zone, and getting your hands dirty), and experimental (demands flexibility and a hunger for constant evolution). Moreover, the design thinking mindset is defined as freshly naïve (looking at the world with fresh eyes and with a beginner's mind), creatively confident (losing the fear of failure and critique, being okay with not knowing the "right" answer and seeing beauty in imperfection and the unfinished), and optimistic (the belief that problems are really just opportunities in disguise, and that a few people working together in a new way can change the future for the better) (Design thinking for libraries: A toolkit for patron-centered design, 2015).
- Design thinking allows one to:
- identify motivations, problems and needs of members of the community and of networks;
- identify the interests of important stakeholders;
- support the community and its members in designing new services and products;
- test solutions with users and evaluate their benefits for addressing problems faced by the community (Novotny et al., 2019).

There are several widely known design thinking methods. While it may not apply in every library situation, the IDEO method, which include five key elements, can be taken as an example by librarians:

- Understand – get to know the needs and challenges of your user population and how they perceive your products and services;
- Observe – watch real people in real-life situations to find out how they work, what confuses them, what they like and dislike, and where their needs can be better served;
- Visualize – think about new ideas and concepts and how the people who use your library will use them;
- Evaluate and Refine – create prototypes in order to test ideas and then improve them;
- Implement – the longest and most difficult part of the process to present any new product or service to the public for user consumption (Kelley & Littman, 2016).

A similar method consisting of the following steps: empathizing, defining, ideating, prototyping, and testing (Brown, 2019) shows similarities between different methods put forth. The main point in all these methods is to follow the given steps consistently and without flaws for a successful result.

As an example, there were six design thinking methods selected for their significant visualization techniques, their ability to enhance communication within multidisciplinary teams, and as well as for their simplicity in use by non-experts:

- Personas – represent a "character" with which client and design teams can engage and use efficiently in the design process. Personas can be used during the empathizing or defining phases of design thinking;

- Stakeholder map – a stakeholder approach reflects the human and business perspectives of design thinking. A stakeholder map is a visual or physical representation of the various groups involved in a particular product or service, such as customers, users, partners, organizations, companies, and other stakeholders (Stickdorn, Hormess, Lawrence & Schneider, 2018);
- Customer journey map – describes a collection of touchpoints from the beginning to the end of the service delivery, as seen from the customer's point of view. It helps the identification of chances for service innovation and problem areas for service improvement;
- Service blueprint – shows the actions between customers and service providers during a service delivery. It is a process-oriented method for the business and technical perspectives of design thinking, and shows all actions, including technical activities;
- Business model innovation – is about exploring market opportunities. The challenge is to define what the business model actually entails. Generally, it describes the business logic of an idea, product, or service in a simple and visual representation;
- Rapid prototyping – is a quick formation of visual and experiential manifestations of concepts that can assist in determining which solutions are technologically possible. Prototypes can be created and quickly tested using the rapid prototyping method. It can support communication by facilitating conversations and feedback regarding solutions for a particular product or service (Chasanidou et al., 2015) .

Selecting the right tools is also important for effective decision-making and communication in a multidisciplinary team. The tools can be physical, such as a pen, paper, and whiteboard, or software tools with rich graphics that support the design thinking process. Digital tools, such as Smaply, Stakeholder Circle, Touchpoint Dashboard, Creately, Strategyzer, Axure RP (Chasanidou et al., 2015), Sprintbase, Miro (Realtime Board), MURAL, Shape by IDEO, Digsite, Batterly, Stormboard, Google Docs, Sheets & Slides (Innovation training: Top software tools for design thinking, 2018) and other tools help a team adopt a new perspective on design tasks, to visualize the system's complexity, and depending on the design stage reflect a convergent or divergent view of design.

SERVICES DESIGN PROCESS IN ACADEMIC LIBRARIES

Design thinking as a process can have a much broader impact and can be used to solve various kinds of library challenges including programs, spaces, services, and systems. While programs are typically time-specific offerings like classes, services are often a systemic offering that people not only attend, but also use and advocate. Service design often focuses on making the systems behind services, like communication or technology, better for the customer. Great services harness the power of the library, librarians, and all of the library's resources to move society forward (Design thinking for libraries: A toolkit for patron-centered design, 2015).

User-centered services, which are one of the main objectives of any type of library and information institution, include three different levels:

- Passive level of service, which provides the resources (books, journals, computer software, etc.) for use with no help from the professional staff;
- Reactive level of service, which provides professional assistance when the user requests help;
- Assertive level of service, which anticipates the needs of clientele based on the results of a systematic community analysis (Grover et al., 2010).

Passive and reactive levels of services are mostly comprised of traditional and modern library and information services (circulation and renewal of books and other physical library materials; reference and information services; membership services; interlibrary loan (ILL) services; information literacy services; online services; technical and technological support services; study space and facility services; digitizing services; events organization services; and other academic and social activities) (Ismayilov, Ismayilov, & Mammadova, 2019), while assertive level of service is counted/intended for the future. In this regard, design thinking methods and tools are necessary instruments in terms of development of the assertive level of the service by re- designing the existing services or creating new ones to better meet the library patrons' needs.

The tension between change and preservation of the status quo is discussed, along with the need for re-conceptualizing values in order to provide successful customer-centered information services. The role of the information professional is to diagnose information needs and conduct community analysis, which are essential to that process. The diagnostic process (diagnosis/analysis, prescription/recommendation, treatment/implementation, evaluation) occurs at two levels:

1. analyzing the characteristics of the community or area served;
2. analyzing the needs of specific individuals.

The *primary methodology* for data collection and analysis is a systematic process enhanced by intuition, impressions, observations, interviews and common sense. What comes to the definition of community analysis, according to Greer and Hale, in their study titled "The community analysis process" (1982) is as follows: "Community analysis is a systematic process of collecting, organizing and analyzing data about the library and its environment. It is designed to assist the administrator in choosing from among alternative patterns of satisfying residents' information needs and interests" (Grover et al., 2010).

Mapping the community and its problems is one of the initial stages of the analysis process. Necessary steps include:

1. starting with your organization and listing the problems and topics it is dealing with;
2. defining related activities and tools that are available for addressing problems, adding other institutions and their activities related to the problem;

3. considering the bigger picture, continuing mapping with other community members, updating the map, prioritizing issues, and planning further steps (e.g., collaboration of people and institutions to solve a particular problem);
4. carrying out the scheduled steps;
5. editing the map according to the results of the intervention and returning to point 3 again (Novotny et al., 2019).

The library design team may also want to create a stakeholder map to identify key stakeholder groups for a given service point or service task. Stakeholders mostly include internal (college librarian, librarians, library staff) and external (faculty, students, staff, alumni, administration, community, affiliated libraries, etc.) groups (Marquez & Downey, 2015) .

In an academic library environment, analysis can be provided to identify learning gaps and how this learning problem might manifest itself in an academic library setting:

- Students in a specific disciplinary area or course who consistently produce poor papers owing to shoddy research or the routine use of low-quality sources;
- College seniors who are still unfamiliar with the scholarly journals in their discipline;
- Distance learning students who need better research skills but are unable to take advantage of the librarians' on-site user education programs that are restricted to the main campus;
- Faculty who indicate a willingness to better integrate information literacy skill building into their courses but clearly lack the ability to adequately transfer the appropriate skills to their students;
- Library staff or student workers who need to learn a new technology in order to deliver better customer service as library service points (Bell & Shank, 2007).

To address all these learning problems the library may develop or re-design its instructional services and products. What ties together nearly all forms of instructional systems design is a generic model known as ADDIE. It is an acronym for:

- Analysis – the process of defining what is to be learned;
- Design – the process of specifying how it is to be learned;
- Development – the process of authoring and producing learning materials;
- Implementation – the process of installing the instruction product in a real-world context; Evaluation – the process of determining the impact of the instruction.

The instructional designer's first task is to assess and analyze the learning problem to better understand it in order to develop a solution. In most cases institutions employ instructional designers to aid faculty in the development of the curricula and courses, while academic librarians would more likely to use

instructional design to develop unique solutions to the problematic learning situations.

Coming up with different problem-solving ideas requires the service design team to be built with people who have different perspectives on an issue, very diverse working styles, personalities and preferences (for example from a variety of functional areas of the library: reference, circulation, technical services, web design, etc.), and can therefore contribute from different angles. On its turn, the library design team should create a user working group composed of a diverse group of patrons, to provide different levels of feedback from their unique perspectives (Marquez & Downey, 2015).

The first step toward defining a design challenge is to identify a target user group and to focus on a problem for a particular group of people (in the current case, the university community). Once the target user group is selected, it is necessary to think about what kinds of problems they are facing in the library and what they wish for their user group. The key to defining a challenge is framing a problem that is actionable with the time and resources that the library has.

The challenges that the libraries commonly face can be written as “How Might We...” questions, and there are many possible answers and solutions to each one. For example:

- How Might We... create user-friendly web experiences that are on par with the 21st century digital landscape?
- How Might We... take advantage of unused space, or re-distribute space so that patrons can discover more of what the library has to offer?
- How Might We... redesign library metrics so that people understand the value of the library in more meaningful and emotional ways? (Design thinking for libraries: A toolkit for patron-centered design, 2015)
- How Might We... eliminate students’ learning problems with the help of information literacy sessions provided by the library?
- How Might We... maintain the high-quality level of library online services in order to get along with difficulties during the pandemic situation, etc.

Core *research methods* in any design project include user interviews, expert interviews, observation, immersive experiences and analogous experiences, while additional research methods are comprised with personal diaries, photo essays, journey maps, card sorts, concept provocations, etc. (Design thinking for libraries: A toolkit for patron-centered design, 2015).

Planning the research is creating a wish-list of the ideal plan; during the course of which, documenting your research (capturing what you see, taking photos and videos, taking notes of interviews) is helpful for the next phases. *Sharing stories* (setting up a storytelling session, taking turns, actively listening) is also important in terms of highlighting rich areas of opportunity, since some teams may have subdivided while conducting research. Others may do all the research together. *Identifying patterns* (clustering information, looking beyond the surface,

recognizing relationships, finding actionable headlines) is likely the starting point for themes, which go hand in hand with the insights that will drive the design.

In the example of information literacy instruction project, the types of information constituting the design grid look like:

- Objectives – Students must select the most appropriate database(s) when given a specific topic or search subject 80 percent of the time;
- Assessment items – Multiple choice pre- and post-tests. Within different disciplines, the student should select the most appropriate database from a choice of several databases. Tests can be taken and graded online using course management software;
- Instructional Strategy – Tutorial: A static web page using text and screenshots will introduce the student to the spectrum of library databases by discipline. This will give the student a self-paced and self-guided method of discovering the significant databases in each discipline covered within the university curriculum (Bell & Shank, 2007).

Creating the instructional project and planning for the launch encompasses prototyping (creating worksheet, storyboarding, etc.), creating/building, formative evaluation and revision phases, and diffusion, training, resource allocation and budget parts, respectively. For a successful implementation in an academic setting, creating the right conditions is crucial:

- Obtaining support from faculty and administrators for a new instruction product;
- Convincing faculty and administrators of the instruction product's value;
- Ensuring that support structures required by the instruction product are in place;
- Ensuring that any additional resources needed to implement the instruction product are available;
- Identifying librarians and faculty who will be using the instruction product and provide proper training and support.

IMPACT OF DESIGNED SERVICES ON UNIVERSITY COMMUNITY

The recent global changes driven by the emergence of the COVID-19 pandemic affected academic libraries and made them quickly adapt to requirements and conditions of this situation. This was new and unseen for libraries and other information centers. Taking advantage of opportunities of modern widely-used technical and technological novelties (applications such as, Zoom, Canva, LibGuides, Microsoft Teams, etc., social media platforms Instagram, Twitter, Facebook, Telegram, etc.), academic libraries, as other institutions, could also make changes in their daily activities, and re-design their information services in order to provide high-quality library services during these hard times.

The main objective of the academic libraries during this pandemic is to convert

as many physical library services to virtual only services, such as online reference desk service, online instruction and teaching, enhanced outreach services through libraries' social media pages, etc.

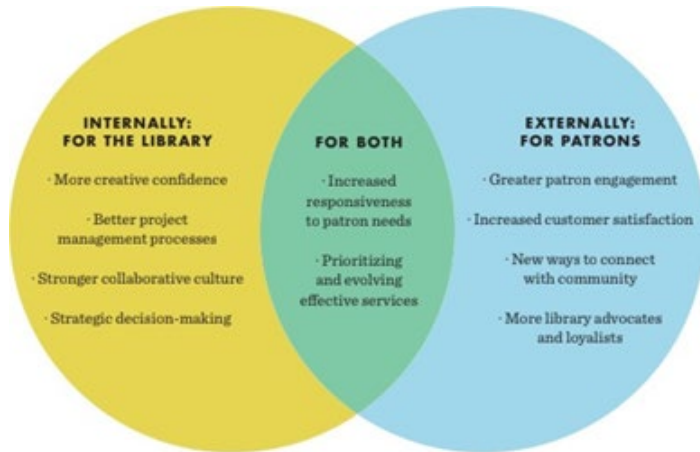
Most of higher education institutions across the world plan to conduct Fall 2020 semester online, and continue to develop virtual programming to meet the needs of students, staff and faculty. During campus closure academic libraries developed and employed essential virtual library outreach services for orientation sessions and for addressing the university community in general: Library Dean welcome video and video-introduction about general library issues, online library orientation, virtual library tour; social media communication about library services, updates, events, and infographics; website promotions, reading recommendations, virtual exhibitions and book displays; library blog; online library guides, etc.

As the situation was unseen, libraries transited their existence to virtual spaces quickly using the practices of other leading libraries and implementing generally advised methods and techniques to adapt to new reality. The real evaluation and impact of this new experience is yet to come.

Meanwhile, the feedback interviews, questionnaires, surveys helpful in defining the impact of services design activities on user-groups and/or community, as a whole. Evaluating outcomes, measuring the efficiency, performance, and progress of the re-designed or newly created services is critical to the learning cycle. Without a good assessment of the impact a solution has made, there is often not enough information about the direction for the next round of designs. Measuring impact is important for everyone – the implementer, the funder, the design team and the community. Outcome measurement helps people understand where best to invest their resources. It is an opportunity to assess and plan for the future (Design thinking for libraries: A toolkit for patron-centered design, 2015).

In addition to target groups, design team members, (i.e. librarians) also get considerable benefits from service designing activities. Learning more about skills, tools, techniques required for carrying out tasks set by the strategic plan of the design team, the librarians involved in these tasks grow professionally by learning from the experts.

Practicing design thinking helps librarians develop a new way of working by engaging library users, thus it can spread throughout an organization and provide several benefits for both the library and its patrons (Design thinking for libraries: A toolkit for patron-centered design, 2015).



To study the results of the new re-designed virtual library services, especially instructional services, the activities of several academic libraries - ADA University Library in Azerbaijan (Research and instructional services, 2020), Koç University Suna Kiraç Library in Turkey (Çinar, Yılmaz, & Otur, 2020) , Libraries of the Rutgers University in the USA (Charles & Todorinova, 2020), Oviatt Library of the California State University Northridge in the USA (Lampert & Martin, 2020) , Florence University Library System in Italy (Terzi, 2020) , Library of the Wimbledon College of Arts in England (Sideras, 2020) have been examined, and used to derive general outcomes on aspects such as objectives, methods, results and future directions are as follow:

Objectives – transfer one-on-one library instruction into a virtual environment; maintain literacy training program for particular group of students; leverage existing online tools for broader course integration; refine assessment metrics and build a narrative of instructional impact; strengthen and sustain relationships with university departments;

- Methods – collaboration with faculty; learning opportunities via online learning tools, employing quizzes following tutorial content), students' performance data, students' engagement data, etc.
- Results – more comprehensive approaches to library instruction; embracing online library tools identifying areas of collaboration that could be strengthened, responding to faculty need to re-design courses for remote instruction; scaffolded library instruction in each course; the move to a complete remote setting to facilitate conversations with academic partners.
- Future directions – identify other programs and populations that can benefit from this approach; undergraduate journey (Charles & Todorinova, 2020).

From both the library's and patrons' perspectives, the impact of library services design can be evaluated as:

- Improved relationship between the library and university community members (faculty, students, administrators);
- Enhanced faculty-librarian collaborations to infuse information literacy concepts within courses, assignments, and disciplines (adding a needed link to a courseware site developing resource page or tutorial for a unique assignment, or simply making a social connection);
- Successfully developed information literacy instructions;
- Improved resource searching skills and use of content by students;
- Faculty members' improved content and teaching expertise;
- Improved learning experiences for students;
- Improved online campus communication;
- Improved user experience;
- Services team members' improved knowledge and skills on technical and technological means required for re-designed/new service product;
- Library's role on bringing new ideas that foster innovation, etc.

Like most investments, the rewards are certainly worth the risk if they result in a collaboration that enables academic librarians to support faculty's effort to help students achieve learning outcomes.

With service design, library staff are encouraged to look at all services, how they interconnect as a whole, and to examine them from the perspective of users. This can open staff up to a level of understanding of their users that they may not have considered before, especially in light of the functional siloing common in libraries (Marquez & Downey, 2015).

CONCLUSION

In the service design journey, it is necessary for the service design team to consider all aspects of the design process, and foresee possible failures and unseen circumstances that might hinder the project's success. In this regard all steps of the service design plan should be followed and obeyed without flaws and all ideas and opinions that emerged during the process should be taken into account for the successful solution of issues.

It is necessary to leave room for opportunities to explore multiple solutions. A set of limitations (budget, materials) can actually help the design team narrow down and focus on the right challenges. Constraints can also help surface other creative options that would not normally be considered.

The truth is anyone can learn and use design thinking to create impact. It merely takes practice and preparation. When starting out with design thinking, the creation of evolutionary solutions should be aimed, which means either developing new ideas for your existing users, or leveraging existing ideas for new users (Design thinking for libraries: A toolkit for patron- centered design, 2015).

If the project turns out to be successful, it helps to integrate new people into the community to contribute to improving the learning environment. In this case, it is necessary to start talking and writing about the project. This way, it is possible to inspire others, or methodically help with implementation in another library, which is called growth and scaling in the life cycle of social innovations. If this tangible innovation starts spreading to other libraries and institutions, it might be the beginning of a system change (Novotny et al., 2019). Change is a process that can be either incremental, evolutionary, or revolutionary, depending on what you create (the offering) and for whom (the users).

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