USING SERVICE DESIGN IN TEACHING AND LEARNING SUPPORT SERVICES DEVELOPMENT: CASE TEACHING SERVICE POINT AND STUDENT ANALYTICS DASHBOARD

Markus Torkkeli, Jiri Lallimo

Aalto University (FINLAND)

Abstract

Aalto University, born in 2010 from the merger of Helsinki University of Technology, Helsinki School if Business, and Helsinki University of Arts and Design, is a multidisciplinary university with 15 000 undergraduate and doctoral students, and approximately 4 000 staff members.

Since the launch of the new university, Aalto has put a lot of effort in developing student and teacher centric services. The work has been carried out in projects, strategic initiatives, and in national initiatives like Analytics Intelligence project (2018-) involving many universities to work together, to co-create new innovative solutions and approaches to promote excellence in teaching and learning.

The aim of the paper is to present how we implemented service design approach in two separate cases to develop new services for teachers and students in university context. The paper covers two development experiments, which were conducted in Aalto University Teacher Services (https://www.aalto.fi/services/teacher-services-team) during academic year 2018-2019 using service design tools and methods to build services to the academics and students. The paper presents descriptions of the design experiments, followed by conclusions of applying service design approach.

Keywords: Higher education, service design, learning services, service hub, learning analytics.

1 INTRODUCTION

The development of university practices, services and tools oftentimes relies on university’s own experts or external consults, who define the tasks and carry out the development in order to create outcomes to defined problems. The role of the clients or users (e.g. teachers, students, service personnel) in this design process typically remains as an informant and/or tester of the products or services.

The idea of service design (hereafter SD) is to change this view in order ensure that the users’ experiences, needs and the knowledge creating capacity is taken into full use during the whole design process from the early stages to implementation. In this paper, we present two cases utilizing service design approach, which aims to better cover the users’ potential when developing new services for teachers, and learning analytics tools for students. Leaning to qualitative methodology, we present the results of and discuss of the use of service design approach in university context.

SD methodology in higher education institution (hereafter HEI) context is interesting because it is about seeing development with new yes. SD means a shift from seeing design as styling or making tangible products to approach design as an iterative process, which is based on the overall targets, visions and strategies of the organization. And further, SD takes the users as a focal point and partner of the design [1]. Whereas the previous focuses on designing for the users, the latter emphasizes the design with the users [2]. The notion of users as active partners is closely linked to the ideas of co-designing.

2 METHODOLOGY

Service design can be seen as an iterative and sequenced design process involving all relevant actors to the same table to co-create new better services and service concepts for and with the users. Service design process often involves specific tools like customer journey maps, to bring better customer insights into the process.

The several partly overlapping and characteristic definitions describe SD as an evolving and interdisciplinary approach that combines different methods and tools from various disciplines [3]. The similarities between definitions highlight that in SD the provider and the user have distinct roles and
needs, still reaching for the same aims for the services, which need to be “useful, usable and desirable from the user perspective, and efficient, effective and different from the provider perspective” [1].

According to Stickdorn and Schneider [3], service design process is user centered, holistic, co-creative, and sequenced and includes “evidencing” i.e., making service experience tangible by visualization. Service design principles are in line with the ISO Standard ‘the Human-centred design for interactive systems’ (ISO 9241-210, 2010) [4]:

1. The design is based on an explicit understanding of users, tasks and environments.
2. Users are involved throughout design and development.
3. The design is driven and refined by user-centered evaluation.
4. The process is iterative.
5. The design addresses the whole user experience.
6. The design team includes multidisciplinary skills and perspectives.

Iteration and sequencing is very important part of service design process. In order to find the best ideas, the design process must be iterative. Iterative design means that ideas are being developed, tested and refined a number of times, which aims to drop out the weak ideas in the process. This iterative and cyclic nature is an essential part of good design.

Double Diamond design model by British Design Council [5] is often used model in framing service design processes. That was also used in both experiments documented in this paper. Figure 1 illustrates The Double Diamond model, which is divided into four distinct phases – Discover, Define, Develop and Deliver.

The start of the service design process is a discover stage. The objective of the Discover stage is to act as a ‘phase of divergent thought’, meaning that people participating in the process should keep their perspectives wide. Concrete actions might include analyzing trends and previous reports, gathering insights and posing questions. In define stage aim to make sense, evaluate and rate all the possibilities identified in the discover stage. The goal is to develop a clear brief or specific problem that frames the fundamental design challenge. The typical questions raised concern, among others, which matters most? Which should we act on first? What is feasible? [5]

Develop stage is another divergent stage when concepts are created, leading to creation of prototypes, which are tested and iterated. An essential part of the process are trials, which may lead to errors, but which eventually helps to improve and refine the design ideas. The final quarter of the double diamond model is the delivery stage when the resulting project (e.g. a product, service or environment) is finalized, produced and launched. [5]

In order to get understanding of applying SD in university context, we approach the design process with the following frame: it consists of the main stages of aligning vision, discover, define, develop,
and deliver. These phases contain service design principles: user-centered, co-creative, iterative, evidencing and holistic. The aim of the frame is to use it as a heuristic tool to explore the phases and elements of SD process.

3 RESULTS

3.1 Description of the cases and SD processes

In the results section, findings from two SD cases are described. The cases present different focuses and scales of development. The Teaching Service point was designed during 4 months, whereas the development of Learning analytics tools spans over two years. Despite the differences between the cases, they are also complementary, offering information of rather rapid and focused process vs. a long-term and multi-faceted process. To this end, we aim to explore the critical elements of SD application.

Teaching Service Point

Aalto Teaching Service point i.e. Teaching hub service design process was developed and led by Markus Torkkeli (presenter), Helena Bäckman and Timo Ovaska. The basic idea was to design on-stop-shop for teachers & professors to provide them with a physical service point that will provide solution for all the most important educational technology related issues including pedagogical consultation and production of educational videos and VR. Additionally, we assumed, that there are issues that are left unsupported (like using analytics in teaching and supporting learners), since standardized service offer does not include them in service descriptions.

Teaching hub service design process was sequenced accordingly to the double diamond model by the British Design Council. The iterative process included two design workshops (kick-off and workshop) involving people from different service units, and customer involvement (Figure 2).

Between the kick-off and actual workshop customer insights were gathered through interviews (25 altogether) done by the workshop participants. In the workshop accompanied by project leaders’ preparation different user needs were formulated into service offerings. Finally, prototype service concept was created for implementation and collecting feedback: Teaching Hub started in Aalto University Learning Centre as a pilot stage service in May 2019. The mission of the hub is to provide low-threshold services and service guidance on issues related to teaching. [4]

For the support of teaching, face to face services accompanied with fast and fully online services were preferred. We got hints, that more research oriented (i.e. professor) the role of the interviewee was, more online “just-in-time” services were preferred. University lecturers were more interested in the face to face pedagogical consultation, and various types of activities (trainings) organized within the Teaching hub. Figure 3 presents the initial service offering of the Teaching hub based on user input and the service design workshop by the service personnel.
Concerning the student analytics dashboard, the development goal was to develop learning analytics practices and tools for students. In the background of development is a notion that the digital teaching and learning environments and the student information registers include rich sets of data, which remain underused from the perspective of developing learning and teaching. The development of learning analytics tools and practices, as any other complicated socio-technical environment, needs to be based on thorough analysis of the present and future needs, combined as a co-creation between all the relevant stakeholders, such as the students, teachers and the university personnel taking part to design (ICT, learning services, data management and legal services). That was the reason why the development process was implemented with the principles of service design approach.

This paper focuses to the current stages of aligning, discover and define which are highly important for any successful design. At the time, the design process is heading to the technical application development phase, which will be followed by piloting in autumn 2019. The design of learning analytics tools and practices has concerned the students, teachers and the management level. The design for all the analytics tools users has proceeded tightly connected. Even though the perspectives and the end products (dashboards) are different, they partly use the same data and analytics. In practice, this means that the SD process developing analytics tools consists of several overlapping sub-processes, which involve students, teachers, and specialists from IT, data management, learning services and legal services. In the following, we focus on co-design between students and university in-house experts.

**Align and create vision for learning analytics**

In order to understand and describe the SD process and its aims, it is important to align the design process in accordance to the organizational frame where the development is embedded. This view was developed in the beginning of the process to clarify the main aims from the perspective of the organization and the users of the services. Firstly, the university-level strategies of studying and teaching set the grounding for developing learning analytics and its tooling, the student dashboard. These concern the university’s aims for high quality learning and teaching, support the students to graduate in time and the support for university level management. Secondly, the three main focuses of activity (and stakeholders) were defined as studying (students), teaching and academic guidance (teachers and academic advisors) and support for management (programme and university level managers). Respectively, the strategic goals are to support and make the students’ learning path more fluent, develop pedagogical and guidance practices to the direction of using digitally meaningful environments in a student-centered manner and offer university management level data-driven information of studies and teaching to steer the management and development.

In the beginning of learning analytics design it become clear that an analytics policy for the university is needed in order to be able to implement learning analytics. A task force consisting of expertise of
learning and teaching, data management, IT and juridical issues. Analytics policy aims to set the approved principles that guide the development and use of analytics. The first version of the policy will be launched in summer 2019 as a result of co-work between specialist and representatives of teachers and students.

Discover

The discovery phase took place in parallel with aligning phase in late 2018. First, a formal project was launched to develop learning analytics for the university. This included ensuring the sufficient resources, such as a project manager and a data scientist and giving the project a formal status in university’s development roadmap. This was particularly important in order to get the relevant resources from IT, data management, juridical support and connections to students and teachers as main users of the new services.

In order to collect initial understanding of the possible learning analytics solutions, the project personnel gathered insights gathered from the existing literature. It soon it become clear that the experiences and solutions in other countries were not transferable to the local context due to several juridical, technical, practice-related and ethical reasons. However, the literature review served in aligning the local university aims and some potential features of learning analytics tools.

One of the most relevant sources of information and collaboration was the numerous meetings and discussions with the students. In order to ensure the student perspective, the SD process involved different ways of gathering and co-creating information between the students and university experts. We arranged co-design workshops, interviews and discussions in order to collect information and create understanding of the students’ needs concerning the different elements to support the studies. A typical 2-3 hour workshop consisted of a short presentation of the learning analytics, students’ brainstorming and modelling the critical elements of the studying path and the various forms of support needed for fluent studies and graduation.

Define

Based on the material produced in discover phase, in define phase the material was evaluated and rated according to its freshness, feasibility and most of all, based on the emphasis given by the students. The defining of the ideas was done by using fictional personas/profiles, customer service journey —maps, interviewing the students and by conducting questionnaires. In the workshops, in order to define the initial ideas, students made visualizations of their ideal dashboards, which could support the students to plan, assess and execute the studies by offering e.g. visualizations of the studies, recommend on various study related actions, make predictions on the studies, and give other personalized information.

In parallel with co-design with the students, the core technical and data—related issues were defined between the experts from IT, Management data support, Learning services and Academic legal services. This has involved numerous design meetings in order to define key indicators of analytics, the technical and the juridical issues concerning the storage and use of data, the application interfaces, and development of visualization tools and the actual dashboard. Based on this work, the (current) key elements have been chosen in order to proceed to application development phase.

Develop and deliver

The development of the learning analytics applications was based on the ideas created with the students, the teachers and the programme managers. The fast visualizations and paper mock ups based on the needs and done by students have been guiding the first prototypes of student dashboards. Whereas the ideas were discovered and defined between students and university experts, the technical building of the dashboard has involved the co-design between university experts. The development of the prototypes is at an initial phase. Even though the needs from the students are well articulated, there exist several challenges concerning the technical and data issues. The first delivery phase of the learning analytics tools will take place in autumn 2019. The pilots with students, teachers, and university / programme level management will take place in autumn 2019 and spring 2020.

4 CONCLUSIONS

In this paper, we have presented experiences from two cases using service design approach. The both experiments have been successful. We managed to involve people and run a service design
experiment and to get results and outcomes. Teaching hub is already running, and in Student dashboard project the design proceeds in schedule. Most importantly, in both cases new practical solutions for supporting university teaching and studying were reached in a customer-oriented manner. That is not always the case in service design processes – neither in university services.

The experiment brought out information about the service needs of the academic staff and the students. Development of university teaching and learning especially concerning digital solutions needs to be more professional and the same time more user-centric than ever before. In order to accomplish this, experiences and examples about service design methods are sought after.

The experiments highlight the iterative nature of the service design. The mature and feasible ideas cannot be reached during one workshop but requires a process of many workshops. Co-design involves both in house expertise from several fields and particularly, the users’ active participation. We found also that a combination of long-term and short-term partnership with users is good, yet laborious. For example, in learning analytics design, some students and teachers were more heavily involved in order to develop in-depth knowledge of analytics and to be able to co-create ideas with university experts. On the other hand, short-term user participation was needed to get a rich variety of user knowledge, for example from the first, third- and fifth-year students, or students from different study programmes.

We have learned that even though service design is rather open-ended problem solving in a given context, it requires thorough planning and preparation of design tools and methods used in sessions, careful execution and documentation of the ideas and outcomes. It is also important to evaluate, what are the focal points when the users and specialists are involved. If service design is executed carelessly, it may become inefficient and unmotivational for the participants. When carefully planned and executed, service design approach offers a promising approach to co-design the services with the users and create added value for the organization.

ACKNOWLEDGEMENTS

We thank Aalto University for offering resources for developing the experiments. For Teaching service point, we especially thank Helena Bäckman and Timo Ovaska. The development of Learning analytics has been funded by the Ministry of Education and Culture of Finland in a joint initiative ‘Analytics Intelligence’ (https://analytiikkaaly.fi/in-english/).

REFERENCES


