DESIGN THINKING SPRINTS IN HIGHER EDUCATION - THREE CASES AND APPROACHES

L. Wallenius

Haaga-Helia University of Applied Sciences (FINLAND)

Abstract

This paper presents three cases of design sprint courses conducted in higher education and implemented in diverse ways. First, the framework of design thinking is presented. Secondly, three cases of university courses implementing design thinking as a work method are discussed and compared. The last part discusses learnings of the cases and gives recommendations.

Design thinking is a human-centric approach that solves business problems by bringing together the needs of people, viable business solutions and technology in innovative ways. Design thinking in its various applications has become popular in the 21st century business environments. It originates in the late 90's in the Stanford d. School's design process of five steps. In the framework of design thinking there are various other approaches such as Design Council's Double Diamond and Google Ventures' Design Sprint. The approaches have in common customer-centricity, objectives to tackle business problems, combining disciplines and specialists from different fields, using innovative tools, and a fast pace of work where ideas are tested with prototypes. The objective of all approaches is to create innovative solutions that are desirable, technologically feasible and viable for businesses to realize.

The first course case implemented Design Sprint by Google Ventures on institutional level in Bachelor level education. The Design Sprint approach implemented gave student teams independence to adjust and lead the work themselves. The teacher team coaching the sprint have prior experience in facilitating design sprint. The second course case, Ekotek Nord, had also the Google Venture's Design Sprint approach. The participants were an international group of university students from different countries. The sprint work comprised of student centered and teacher lead activities. The teacher that facilitated this course came from different universities and had earlier worked together with similar courses. The third case was a 10 days 100 challenges course given by a consortium of three universities in Finland. This sprint week implemented Stanford d. School model and Google Venture approaches. The student participants formed an interdisciplinary and international group of Master and Bachelor level students. The course in this third case comprised of a MOOC (massive open online course), a 7-day sprint and a learning diary. This model includes in-depth customer research, and creation of concepts and business models.

All the three cases were successful, and the participants gained competences in service design. The learning processes and outcomes were slightly different, which might be because of the different approaches to design thinking, different pre-study assignments and backgrounds of the student teams. However, all the students felt that they had learnt the method. There were differences in the teamwork experiences and needs of guidance. The paper presents the strengths and weaknesses of each case in more detail and gives recommendations for further work.

Keywords: design thinking, design sprint, service design, customer orientation, problem solving, innovation, 21st century skills.

1 INTRODUCTION

This paper presents three cases of design thinking sprint courses in higher education. First, the framework of design thinking is presented, and different processes are introduced. Secondly, three cases i.e., three university design thinking sprint courses are discussed. Thirdly, the strengths and weaknesses are discussed. Lastly, recommendations for future design thinking sprint are outlined. The paper is based on practical experiences of using design thinking as a learning method in higher education setting in Finland and the Nordic-Baltic region. All the cases presented were sprint courses which means that they had an intensive mode. Design thinking sprints have been chosen as learning methods in these course cases because the methods are popular development and work methods in work life and thus allow to practice and learn work life competencies for the future. The sprints advance 21st century work life competencies and skills such as ability to use relevant development methods, critical thinking, financial and trend analysis, problem-solving, communication and argumentation, ethical thinking, self-reflection, presentation skills and use of digital tools. A central task of universities

of applied sciences is to prepare students for work life and offer them possibilities to gain practical experiences in their fields of study. Another strength in implementing service design sprints is that they involve students in authentic university-work life cooperation projects.

2 THE FRAMEWORK OF DESIGN THINKING

This chapter gives a theoretical framework to Design Thinking and presents three models to implement it, namely Stanford d. School, Double-Diamond, and Design Sprint.

Design thinking is a human-centric approach that solves business problems by bringing together the needs of people, viable business solutions and technology in innovative ways. Design thinking in its various forms and implementations might be regarded as a very popular approach in the 21st century business environments. It originates in the late 90s in the Standford d. school's process of five steps. It is a process and a mindset of working towards problem solving. There are various approaches and models of how design thinking is applied such as Design Council's Double Diamond with a four-step process and Google Venture's Design Sprint with a five-day process. The approaches have in common the main characteristics of design thinking, which are: customer-centricity, objectives to tackle business problems combining disciplines and specialists from different fields, using innovative tools and a fast pace of work to test ideas and prototypes. The objective is to create innovative solutions that are desirable by users, technologically feasible and viable for business to realize. [1]

Design thinking has five characteristic elements that are also called as five steps. The steps are customer-centricity, visualization, professionals of various fields, quick creation, and testing of ideas. According to Lockwood 2010 [1] Design Thinking has evolved into service design and has the same principles. The purpose of a design sprint is to achieve much in a limited amount of time where while the time limit and the not-familiar surroundings and team members add to the pressure of making achievements in a limited time slot. A service design process starts with defining problems that need improvement from the customer's point of view. It works on defining the needs, creating, and finding best solutions to meet the needs. The new concepts created are tested, and, if needed, iterated to become desirable, feasible and viable.

The following presents the three models of design thinking processes that are implemented in the cases discussed in section three of this paper. The models are Stanford d. School model, Double-Diamond by Design Council, and Design Sprint by Google Ventures.

2.1 Stanford d. School design thinking

Design thinking has evolved in the design field and was developed into service design processes in the 1990's. The Stanford d. school Design Thinking Process could be seen as a model for modern design thinking. The process focuses on customer understanding, visualization, bringing together experts from different fields to create and visualize solutions, and test ideas. It includes five steps which are described in the following and illustrated in Figure 1.

Step 1 Empathize: In empathizing developers seek to understand the customer and gather information via methods such as interviews, questionnaires, observation, or shadowing.

Step 2 Define: The customer understanding is defined and visualized to help designers use it. Tools that help define and synthesize the customer understanding are e.g., creating of user personas and empathy maps.

Step 3 Ideate. The data gathered is used to create ideas. Ideas are first created objectively and then narrowed down [2]. The objective is to create products that are desirable to users, feasible to realize technologically and viable from the economic point of view. The idea that all the three conditions are met is called the sweet spot of innovation. The ideas to create products need to be thus that people want them, possible to create and functional, and they should bring added value to the creator company [3].

Step 4 Prototype: After choosing ideas with sweet spot of innovation, prototypes are created. The prototypes are simple visualizations or modeling of the idea for the end-user to be able to understand the concept. The prototypes might be physical or digital, and they might demonstrate products or be service blueprints.

Step 5 Test: The testing phase takes the idea to customers. The ideas are tested quickly, and the desirability can be discovered. The testing can be done e.g., by interviews. The prototypes might take various forms, but they are not ready-made products but only facades. [2], [3] The testing provides a

quick way of failing and can save much time and resources. The ideas can be iterated, and other ideas formed in the design process in question might be taken into the prototyping phase.
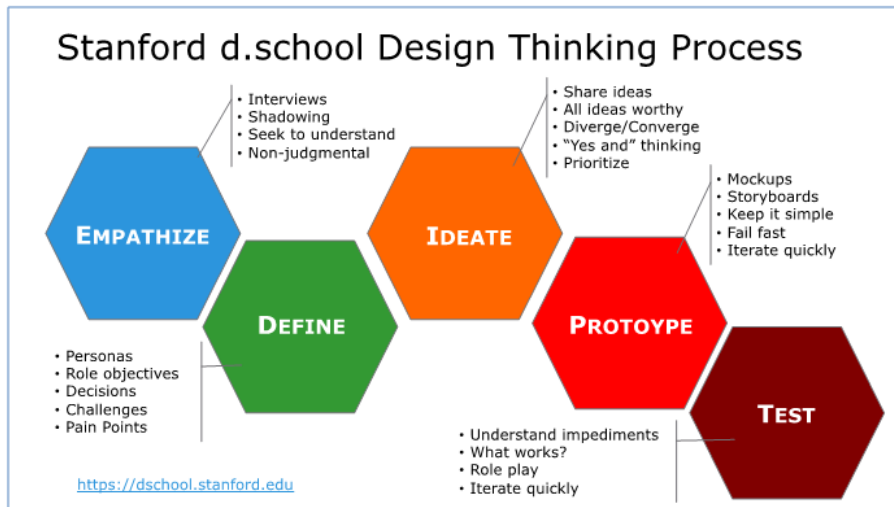

Figure 1: Standford d. school Design Thinking Process [4]

2.2 Double Diamond Model of Design council

The Double-Diamond model was created and launched by Design Council in 2004. The name double diamond comes from the visualization of the four-phase process that diverges and converges. The model includes key principles and methods for design that professional and non-professional designers need to understand to make long lasting changes. The principles are 1) putting people first meaning that designers need to users of the service, 2) visual and inclusive communication that ensures understanding the problem and ideas, 3) collaboration and co-creation and 4) iteration which means that designers need to react to test results, check for errors and re-teste and re-iterate the ideas [5].

The process starts at *Discover* phase with a general problem. This helps to understand users, their needs and behavior. Designers talk with users and stake holders. *Define* is the next phase in which the collected data is developed into insights. *Develop* phase starts the second diamond, and here a specific problem is tackled when ideas are created. The ideas are sorted and checked for feasibility and taken into *Deliver* phase for testing and prototyping. [5]. A Double-Diamond process is demonstrated in Figure 2. The design process depicted includes testing in the prototyping phase and depending on the results with iteration taking the developers back to Develop and ideation. Thus, the different steps of the diamonds might be repeated. The process can continue until a feasible, desirable, and viable solution is created.
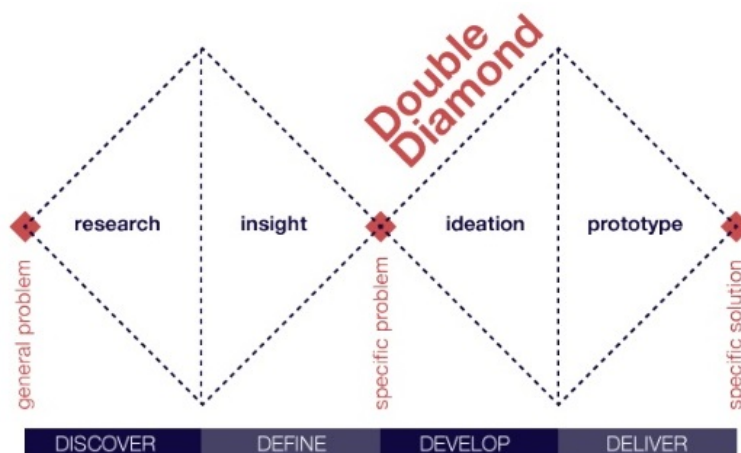

Figure 2: Double-diamond process [6]

2.3 Design Sprint by Google Ventures

The Design Sprint service design model is developed by Google Ventures (hereafter GV), and it is a five-day process that helps businesses to find answers to in-service problems and accelerate product development. The Design Sprint is a way to develop and test ideas cost-effectively and quickly. Each Design Sprint should have a real-life business problem to be solved. This customer centered method starts with gathering customer understanding, continues to generating and iterating ideas, and to making decisions on best ideas, creating prototypes, and testing them. The print process combines design thinking, innovative development, business strategy and behaviour sciences. Also, a Design Sprint may be arranged to any party by any party if acknowledgement is given the GV Design Sprint method. [8].
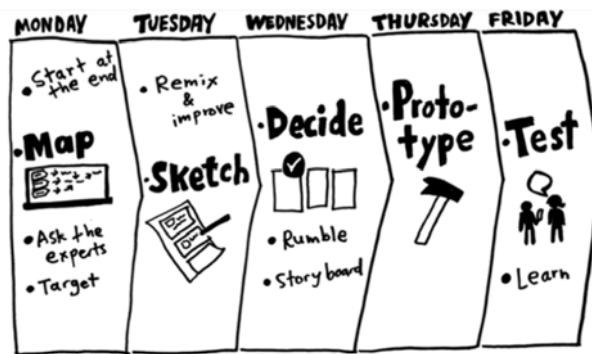

Figure 3: Design Sprint week [9]

3   THREE DESIGN THINKING SPRINT CASES

The following presents the cases of three different types of design thinking sprint in higher education. The cases were chosen because they implement design thinking in slightly different ways, are facilitated by different types of teacher teams, make use of different design and communication tools. Most importantly the student teams comprise of students with different backgrounds in learning, culture, and environment. All these factors might affect the learning experience and results.

3.1   Case 1: Learning amp Design Sprint Subsection

The first case to be presented is a learning camp course in service design in bachelor education at Haaga-Helia UAS. The learning camp is an obligatory part of the degree studies in the degree programs in aviation business, international sales and marketing and tourism and event management. The Learning Camp Design Sprint comprises of a pre-assignment, a five-day sprint week, consultation meetings and a final commissioner presentation [10].

The commissioners for the learning camp sprint are companies from the surrounding business environment. Haaga-Helia UAS has arranged Design Sprints since 2018 and they are offered for groups of 30 – 120 students with a teacher facilitator team of three to seven.

The students have a pre-assignment of familiarizing themselves with the Design Sprint method. During the sprint week GV materials and team activities are used to engage the students. Also, icebreakers and team-building activities were used, inspirational speakers, former sprint students and commissioners are invited to visit the sprint week. The students are arranged into teams who manage each day's work with the given GV instructions after an opening session each morning of the sprint.

The specific features of Case 1 were that it was a face-to-face implementation to a group of interdisciplinary students who were familiar with the physical setting of the course at their home campus. They knew the teacher facilitators and some of the team members. In the pre-assignment the participants reflected on the design sprint model. The student teams comprised of students from different degree programs. As the sprint started, they assigned themselves sprint roles and each team had a facilitator. Each sprint day started with one of the facilitators giving an opening session to review the day's activities. The activities were team-lead, and the teams were required to document their progress each day giving a description of the process and achievements. The dedicated facilitators met the teams regularly and on request and gave advice and feedback on their work. The teams presented their work to all the student teams on Day 5 and were asked to develop and iterate their concepts before the final commissioner presentations to be given in two weeks' time. The students also gave self- and peer

assessment on the last day, and were asked to give course feedback online i.e., general comments on the course, materials, learning methods, own input, and usability from work-life perspective.

The student group in Case 1 was 30 students and they worked with two commissioners. Only 30% of the students gave general feedback on the course and the average grade given was 3.4/5. They graded different aspects on a five-grade scale from satisfactory to excellent. The rating for own input was from good to excellent, the work methods from good to very good, the learning environment good to excellent, and the learning materials and activities form good and excellent. Interestingly, 50% of the respondents found the learnt contents very usable for the future.

3.2 Case 2: Nordplus SPRINTGOESDAL

Case 2 SPRINTINDAL which was a Nordplus funded intensive program (IP) which took place in Åmål, Sweden in April 2022. This sprint was one in a set of sprints created and led by the Ekotek Nord network supported by the Nordplus program [11]. The network comprises of university partners from all Nordic and Baltic countries and the spring 2022 sprint had students and teachers and students from Finland, Sweden, Iceland, Lithuania, Latvia, and Estonia.

In this sprint, the students worked together in multicultural teams (4 teams, 33 students) to solve business problems and those related to marketing and to digitalization. The purpose of this sprint was to adapt the Design Sprint principles to a learning situation providing students with the tools and process for solving problems and testing new ideas. This means that GV methodology was applied to this case as well. The teachers worked in pairs to coach the different stages of the sprint. [12]

In total 15 teachers were involved in the IP. They represented different universities and were both experienced and novice in service design, the sprint offered learning opportunities also for the novice teachers. The students represented different cultures, had various backgrounds as learners, and were accustomed to different ways of studying. The Design Sprint offered new methods especially to students who were used to more teacher lead learning methods. Tools used during the sprint were face-to-face GV learning activities and the digital Mural collaborative whiteboard. Also, tools as email, MS Teams and Zoom were used. The learning environment was new to all students as the sprint was given in a remote setting in a foreign country to all but two student participants. All the student and teacher participant worked and lived close to one another during the sprint. The culture and language were new to most participants, even if the sprint was lead in English. Most of the students knew a couple of students in the sprint and at least one teacher. One could say that the students were faced with challenges of new students, teachers, cultures, methods, tools, and surroundings. The sprint course feedback questionnaire included questions related to the methods, general arrangements of the course and motivation. In the end, 63 % of the students replied to the questionnaire rating the learning experience 4.3/5, the commissioned project, learning materials and assignments 4/5.

3.3 Case 3: 10 Days 100 Challenges

Case 3 is 10 day and 100 challenges micro-course, which is a service design module developed at 3AMK, a consortium of three Finnish universities namely Haaga-Helia University of Applied Sciences, Laurea University of Applied Sciences and Metropolia University of Applied Sciences. [13]. The consortium developed a specific 10 days and 100 challenges model for a joint course in 2018. The framework of this model lies in the Standford d. School model and the GV Design Sprint, and it includes in depth study of customer needs, creation of concepts and business models [14].

Case 3 was given summer 2022. It opened for registration in April. The course was a part of the curricula for some of the students and some took the course as a free choice course. Further, a few Master students participated the course out of curiosity to gain experience in working in a design sprint event. The 10 days 100 challenges micro-course summer 2022 had the themes of digitalization and sustainability, and the commissioners produce and sell high-quality sustainable artisan food and beverage products. Also, they were looking into digitalizing some of their services. The number of participants were 58 students, 6 coach facilitators and 4 student coaches. The students worked in seven person teams each with a dedicated facilitator pair.

The micro-course comprised of a MOOC (2 ECTS) as pre-requisite, a seven-day sprint (5 ECTS) and a learning diary (3ECTS) documenting the design and learning process. The MOOC was text-based and helped the participants familiarize themselves with service design methods and tools. It was divided into five modules each with insights into design methods and tools, and with a module assessment quiz and reflection task.

The participants represented various faculties such as business, culture and art, health care, ITC, and engineering. They were a group of international students of many nationalities that study in Finland. The coach facilitators were lecturers and researchers of various fields with experience in service design. The student coaches had experiences of service design. The sprint took place at XR center, which is an incubator and hub for learning, talent, and co-creation at Metropolia University of Applied Sciences. The venue offered ideal teamwork facilities and was new to most participants, which might have enhanced the learning experience and concentration.

The 10 days and 100 challenges gave the participants an opportunity to gain first-hand experiences in implementing design thinking methods and tools. The problems solved were real-life business problems. The new concepts created by the students can be used in the businesses. The micro-course had an impact on the students' learning and competences and on the commissioners' businesses. Furthermore, the 3AMK staff that was involved valuable gained experience and enriched the culture of collaboration co-creation between the universities. The micro-course feedback will help the consortium develop the micro-course further. [15]

The students were satisfied with the MOOC [16] and 65% of the participants gave feedback on it. The majority the students learnt new contents and models on the MOOC course and only 15% claimed to have been familiar with the content. 23 % claimed to know 50 to 70% of the materials presented on the MOOC. There were differences in student experiences and successes which might have resulted in lack of commitment in the pre-study making it challenging to work in independent teams. The students had diverse needs for coaching and not all were familiar with student lead teamwork and decision making. The sprint was the first face-to-face course module for some of the participants after the long remote mode during the COVID-19 pandemic and for some participants this was their first face-to-face course in their degree studies. This resulted in challenges because not all students were familiar with teamwork, sharing their ideas and work. Further, the levels of commitment and were different. Despite of this 93% of the students completed the course with 10 ECTS. The differences in student commitment and understanding of service design process were apparent in their learning diaries and portfolios as the description and documentation of their development processes were from descriptive to analytic and reflective.

4 RESULTS: STRENGTHS AND WEAKNESSES

All the three cases of service design sprints were successful in giving the participants firsthand learning experience and enhancing work life competencies. The commissioned development projects in each sprint offered possibilities to implement and learn the design process with business perspectives. However, there were also some weaknesses that need to be adjusted for future sprints. The following discusses the results of the three cases and formulated into strengths and weaknesses.

4.1 Timing and setting of the sprints

One of the strengths is the preplanning of all the cases. Scheduling of the sprints took place several months in advance and the timetables and course assignment information were available for the participants in advance. The participants had time to plan other studies, plan their pre-study and arrange other appointments in advance. However, the timing might be seen as a weakness in the actual time of the year the sprints were given. The timings might not have been ideal for all students, and this reflected on enrolments from the different participating universities. Case 1 Learning Camp and Case 2 SPRINTINDAL sprints were given during spring semester when most of the participants were in the middle of their semesters, and some of them missed a week of other courses. The students in Finland had finished the first course modules and taken exams when Case 1 sprint began. Case 2 was given in late April towards the end of the spring semester. The timing of Case 3 10 days 100 challenges was for summer studies, and it might have been ideal as most Finnish university spring semesters finish in mid-May. However, the enrolment of the 3AMK courses opened several weeks after the enrolment of each university's own summer courses had started, and some students had already enrolled to their summer studies at that point. Another factor affecting enrolment negatively might be internships and summer jobs. This can be a reason for uneven participation from the three universities and 70% of the participants came from Metropolia University of Applied Sciences, who also had a service design course as an obligatory part of their curricula.

In the future sprints might be offered as summer studies with the enrolment opening at the same time for all summer study opportunities. Alternatively, sprints might be arranged at times when students do not have regular courses even if it might be challenging in international sprints because the semester dates vary from country to another.

The settings of the sprint events seemed to be good if not ideal. Two of the sprints, Case 2 SPRINTINDAL and Case 3 10 days 100 challenges, took place in settings that were new to the students. This enhanced concentration, learning and creativity. On the other hand, a learning environment in a foreign country in Case 2, was experience both positive and negative. Some students were hesitant to work in a new setting in a foreign language using new methods. On the other hand, most students in SPRINTINDAL saw the new setting beneficial for their learning. The Learning Camp sprint took place at the students' home campus and might not have been as inspiring as an unfamiliar setting.

Future sprints might be offered in venues new to the participants to enhance concentration, commitment, and learning.

4.2   Familiarity with design thinking methods and business models

The pre-assignments can be seen as strengths as they engage the participants in the service design process prior to starting the actual sprints and development work. The participants familiarized themselves with the service design process and tools. There were differences in the scope of the pre-assignments from 2 – 54 hours of work and the tasks. It is essential that the pre-assignments are meaningful and offer the right amount of challenge. The assignments in case 1 Learning Camp and case 2 SPRINTINDAL might be developed and better defined. Both case 1 and 2 pre-assignments included studying of the GV Sprint book [8]. In addition, case 1 included a report with description and reflection of the method, and case 2 pre-assignment presented the commissioner and required the participants benchmark similar service providers in their own countries and team work on university level with an introductory video. In case 3, 10 days 100 challenges, the MOOC was well received even if some of the participants claimed to have been familiar with the contents prior to starting with the MOOC. The students were satisfied with the MOOC [16] and 65% of the participants gave feedback on it. The majority, 85%, claimed to have learnt new contents and models on the MOOC and only 15% claimed to have been familiar with most of the content. 23 % claimed to know 50 to 70% of the materials presented on the MOOC.

The all the cases the design challenges involved developing the commissioners' businesses. Thus, familiarity with business models and business operations in general was beneficial for the students. The participants in all the cases were from various disciplines, year courses and degree study levels, and the more matured and the business students could benefit from their business knowledge.

In the future, the sprint pre-assignments, as well as the coaching, might include more business content for those requiring it. Also, clearer information on facilitator and coach roles might be beneficial for the students. This because the younger sprint participants gave feedback that they would have needed more advising in business concepts and processes in general.

4.3   Student teaming and role taking

The student teams were created to mix disciplines and more novice and experienced students. One of the core principles of service design thinking is that the development work is done in teams with experts of various fields and in this case from various disciplines. The different points of views and expertise help the team innovate and create and have insights to the user needs. The interdisciplinary teams in all the three cases comprised also of students of different nationalities and in case 2 of different learning practices. Service design and sprint modes were not the only new challenges for case 2 participants. The communication styles, familiarity with student-centered learning and teamwork varied. The sprints were given in English, which might have created challenges as it was not the first language or the main language of tuition in their studies for most of the students.

The working and communication cultures of the students in all the sprint were slightly different. In Case 1 the students were all 3rd semester students who had worked with study projects in teams from the beginning of their studies. Also, these students were at their home campus and knew some of the other students. The concerns of Case 1 students were how to manage the week in English, and some had doubts about the Design Sprint as a process.

In Case 1 the students were asked to assign themselves GV team roles on day one. They also mapped their strengths and had team building activities on the first day. Most teams divided the roles according to the strengths of each team member.

In Case 2 the students took a team role test to discover each team member's strengths, before deciding on the GV team roles. Some of the teams would share the roles between several team members. The leaderships of the teams were not clear in all teams and there were some conflicts, that might have

resulted from strong personalities or miscommunication because of cultural differences. The students had prepared a university participant team introduction as part of their pre-assignment, but the introductions were not shared as the sprint started.

In case 3 the students could independently decide on team roles and in many of the teams the master students to the leader and even facilitator roles. They used their leadership competence to facilitate the more novice students even if they later claimed this to have prevented them from learning more themselves and saw this as a weakness in the process. The teams then worked rather independently on their daily tasks and were given the liberty to arrange their session at given times with a minimal amount of supervision Coaching was mostly given on request. Not all teams had good fits and differences in communication styles and personalities as well as familiarity with individual remote studies resulted in some conflicts. The conflicts were solved in facilitator discussions and by changing of teams.

Teams with mixed expertise and empowering them to decide on the team roles are strengths. Relying on each other's strengths and dividing work accordingly might be seen as a weakness in the teamwork, because it might have resulted in not challenging one's skills and preventing from taking leaps out of the box to discover and learn new competencies.

4.4 Facilitation and support

The teacher of all the cases formed teams of coach facilitators. In Case 1 and 2 the students knew some of the coaches in advance and were familiar with their coaching and teaching styles. In Case 3 most of the students and teacher had not met earlier. In all the sprints student teams turned to their dedicated facilitators for help but some individual students expressed after the sprint was over that they felt that they did not receive enough help form the facilitators. Documenting and sharing work in progress with the facilitators proved to be beneficial for the learning process. The students would present their work on request, and some would share their documents and plans. In Case 1 the students created MS Teams groups for shared documentation. In Case 2 the student teams had shared Mural pages and in 10+100 the students could decide which tools to use and whether to share the work to the coaches. Not all student teams shared their work with facilitators in Case 2 and 3.

Facilitators of Case 1 were all colleagues and had run Design Sprints several times, and they were very familiar with their tasks. In Case 2 the 50% of the facilitators had worked together in earlier sprints of the same project but not all had worked face-to-face. There were also novice sprint facilitators who were learning and observing during the sprint. The Case 3 facilitator team consisted of experienced staff, but they had not all worked together earlier. The point of familiarity with each other and each other's communication and coaching styles might have had effect on the first days of the sprints. It was evident that the novice and senior facilitators benefited from working in new teams and pairs, just as the students. Some facilitators might have had a history of different teaching traditions and slight difficulties to adjust to the process and work methods of design thinking. Still, the fact that the facilitators represent various disciplines and research areas, enriches the work just as the mixture of students in the teams.

However, it must be noted that design thinking facilitators and coaches often are curious and innovative, social, and open to new ideas. These characteristics are such that many facilitators have in common and thus co-operation with is quite easy even if the coaches have not met each other prior to the face-to-face sprint course.

It is recommended that the coaches agree on the coaching practices and communicate them clearly to the students. This clarifies the facilitator and coach roles, and the teams know whom to turn to for help, which in turn will be beneficial for the learning experience. Even though the design thinking is customer-centered and draws on innovative methods of developing services and operations, there should be clear rules and follow-up during sprints. Student teams might be asked to document their work and gather data such as interview results, product data and display it during the sprint week. They might do the documentation for themselves and for the coaches. If students only list what activities they accomplished during a day, it is impossible for the coaches to understand what has been achieved and how.

4.5 Structure of the days

In each case presented the days started with repetition of pre-learnt matters and a structure with goals for each day was presented. In all the cases there were differences in the amount of coaching the student teams needed. There were also differences in the number of facilitator-lead versus student-lead activities. It can be challenging to estimate how much advise students will need and how well they might be able to administer the sprint activities themselves. The differences in the cases presented were not

that dependent on the pre-work or the teacher input but rather the maturity and business knowledge of the students.

A speedy development process, a multitude of ideas, quick prototyping and testing are all characteristics of service design. Much can be achieved in a short time and there is a limited time to develop, test, iterate and finish concepts during any service design sprint. The intensity can be a strength as the testing provides quick feedback and if an idea fails it can be improved or changed to a new one.

The time limit creates some pressure that can be a positive pushing factor for the team. Pressure might have been created by working in a foreign language, in new surroundings and even in a new culture, with people from different cultures and disciplines.

5 RECOMMENDATIONS

To conclude, recommendations on course programs and processes, teaming of students, coaching and commissioner involvement are given in the following. The recommendations are based on the findings in the three cases presented.

The more detailed the course programs, pre-assignments and processes for the sprint courses are the better. Students should understand the scope, intensity, and the nature of the course when they enroll. Pre-assignments should challenge the student and offer insights into service design and business processes. Assignments as pre-requisites can enhance student engagement and motivation. Clear program with daily goals and clear facilitator roles can enhance the results.

Teaming of students plays an important role in sprints. Student teams should be interdisciplinary, and it is beneficial for the students to learn to know one another and take a team role test. This helps them understand each other and might prevent conflicts. Team building activities build toward team spirits. Also, the students and teachers should learn to know each other to some extent.

Commissioner involvement is vital because the real-life business problems are central for service design sprints. Commissioner presence and involvement clearly benefit students and help them better understand the business processes. If the commissioners are present from the beginning, it is easier for the students to contact them during the week. The commissioned tasks should be clearly formed, and the commissioner must be familiar with the service design process. They must understand that they cannot order a study or customer research but that the development process will take its direction form the first day of the sprint onwards. Thus, the business problem the commissioner has thought of might not be the one solved because the design process starts with discovering who the customers are and finding the right problem. Then the solutions are created and tested.

All in all, service design sprints are recommended as learning environments for students in higher education because they offer first-hand experiences and challenges in solving real-life business problems. The sprints offer students opportunities to practice and enhance work life competences is for their future careers. Jointly run sprints enhance cooperation between universities and opens opportunities for innovative wok life and university cooperation.

ACKNOWLEDGEMENTS

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