

# COMBINING INDUSTRY DEVELOPMENT AND RESEARCH IN HIGHER EDUCATION: A CASE STUDY

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## Abstract

This article reports on an empirical case in which service design approach is utilized for combining pragmatic working life innovation project in higher education and academic research. It is based on a case study in which a new pricing model was developed for the needs of mobile game industry, and at the same time contribution was made to the academic literature. The main results of this article include description of student perceptions of using service design approach in applied research in higher education, as well as the process of using service design. It shows how the application of different service design tools was perceived by a student in this process. The learnings of this article suggest that service design approach was perceived usable and helpful for research resulting in practical solutions and academic knowledge. The structure of this paper is as follows. First, it reviews the literature of service design characteristics. Then, it discusses the literature of a service design process. Next, it makes the case description by explaining how service design approach was applied in the student's research and development process. After that, the paper explains student perceptions and learnings from using service design in the research and development. The learnings relate to achieving the initial insight to the focus of research and development, planning the solution, and iterating the process. Finally, the paper draws the conclusions.

Keywords: Higher education, industry development, service design, student project.

## 1 INTRODUCTION

The service design approach is set of methods for practitioners developing services. It is also a scientific field. The popularity of service design has increased rapidly among practitioners because the methods of this approach have proven to be very powerful in bringing customers and the service experience into the centre of service development [1]. The academic research on service design is growing rapidly [2]. This article reports on a case in which service design approach is utilized for combining pragmatic working life innovation project in higher education [3] and academic research [4]. It is based on a case study in which a new pricing model was developed for the needs of mobile game industry, and also contribution was made to the academic literature. The rest of this article is organized as follows. First, it reviews the literature of service design characteristics. Then, it reviews the literature of design process. Next, it makes the case description by explaining how the student applied service design approach in the research and development process. After that, the paper explains student perceptions and learnings from using service design in the research and development process. The learnings relate to achieving the initial insight to the focus of research and development, planning the solution, and iterating the process. Finally, the paper draws the conclusions.

## 2 LITERATURE REVIEW

### 2.1 Service design characteristics

Service design is a design discipline or a new field of design that supports the development of service science, management and engineering [5, 6]. It includes understanding the customer experience and designing the service offering, and it involves designing the customer experience at the service concept, service system, and service encounter levels [7]. Capabilities of both codesigning as well as co-producing are central in service design [8]. Design thinking has brought to service development and innovation lies a highly user-driven, participatory, dialogue-based and iterative approach [1]. Service design is about planning and organising people, infrastructure, communication, and material

components of a service to improve its quality and the interaction between service provider and customers [9]. It complements the conventional service development approaches by borrowing elements from several disciplines and also by contributing to them [10, 7]. Service design is a collective and cross-disciplinary activity which integrates marketing, human resources, operations, organisational structure, and technology [11].

Several authors have defined and described the nature of service design [12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 5, 23, 7, 24, 25, 26, 27, 28].

Ojasalo and Kaartti (2021) [29] put forward the main characteristics of service design:

- Service design is multidisciplinary, emphasizing particularly the theories and principles of design thinking and service innovation management
- Service design uses several interactive and visual tools
- Service design is human-centred and experience-oriented, addressing the experience of customers and users, as well as other stakeholders
- Service design aims at developing service holistically

Experience is one of the central areas of innovation in the service industries [7]. Experience is also at the heart of design thinking because it defines co-created value in a provided service [30]. Service design deals with design of interaction at difference interfaces and customer's holistic experience [31]. Experience refers to sensation or knowledge acquisition resulting from interaction with different elements of a context created by a service provider [32]. Happenings become experiences when they are digested, when they are reflected on, related to general patterns and synthesized [33]. Experience design in services includes orchestrating the clues, sensory design, engaging customers, dramatic structure, considering the presence and influence of fellow customers, as well as backstage activities [34].

## 2.2 Service design process

One of the most popular service design process models is the double diamond model (Figure 1) introduced by the British Design Council in [35]. The double diamond model consists of four distinct design phases. They are called discover, define, develop, and deliver that diverge and converge. The model maps the design process into points where scopes are intentionally broadened to explore and narrowed down to focus on distinct objectives.

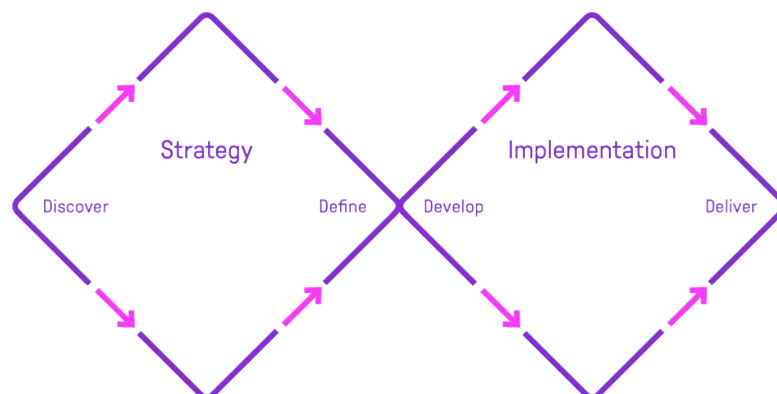


Figure 1. Double diamond model (British Design Council in 2005) [35]

The idea of the double diamond model is as follows [35]. At first, the designers diverge in their thinking to get the big picture. The focus is on discovering and identifying user needs and the company's needs and insights. When these critical insights are gathered, designers next try to make sense of the data gathered in an attempt to identify the most important problems and develop solutions to address those. The next phase is to develop solutions, create prototypes, test the concept and iterate. Some of the key activities of this phase include brainstorming, creating prototypes, management, development and testing. The final step is the deliver phase where the final service is provisioned and launched. This phase is iterative in nature and it typically involves evaluation and feedback loops.

Another example of a service design process is the Ojasalo et al.'s (2015) [1] service innovation process grounded on foresight and service design. The phases of the future-oriented service innovation process are:

- 1 *Map and understand*. Mapping future changes in business environments and understanding and anticipating customers' needs and desires in their contexts are essential in building sensing capability for service innovation purposes.
- 2 *Forecast and ideate*. Findings from the mapping and understanding phase are taken forward to inspire ideation and to forecast alternative futures.
- 3 *Model and evaluate*. Modelling new service solutions moves the service innovation process from sensing to seizing new opportunities. The intangible nature of service solutions and uncertain nature of future both require narrative and visual means to propose, communicate and test potential new service solutions.
- 4 *Conceptualize and influence*. This phase conceptualizes the new service influencing the future. This phase aims at transformation, and accordingly, the future is narrowed toward the preferred. In this phase the concurrent business analysis is integrated into creative thinking.

Various service design tools can be used during the service design process (see eg. [36]). Examples of widely used tools include customer journey maps, personas, interviews and contextual interviews, ethnography, probes, environmental scanning, content analysis, delphi method, ideation workshops, design games, trend cards, storytelling, futures wheel, scenarios, service ecology maps, prototypes, socio-drama, visioning, change paths, service blueprint, business model canvas, and role scripts. [37].

### 3 CASE DESCRIPTION AND LEARNINGS

Next, this article describes a case in which service design approach is utilized for combining academic research and pragmatic working life innovation project in higher education. The service design project was carried out by a student studying in Service Innovation and Design master's program. It resulted in a pragmatic alternative pricing model for freemium games in the mobile gaming industry [3], as well as new academic knowledge and publication [4]. This section also describes the learnings dealing with how the student perceived using the service design process for research and development.

#### 3.1 Case description: Student applying service design in the research and development process

The pragmatic development project followed the Double diamond process model (Figure 1). The main activity and service design tools used in different phases were as follows [3].

- 1 *Discovery (Discover)*. The goal was to discover the best existing freemium models in mobile game pricing. The tools used in this phase were desk research and six contextual interviews with professional from mobile gaming industry. This phase also included a customer journey workshop with three game users. This phase revealed users' pain points, gained new insights and developed new ideas.
- 2 *Dream (Define)*. This phase analysed the findings of previous phase and converted them into actionable items. The phase was based on brainstorming workshop with four professionals from gaming industry. Personas were also used in this phase.
- 3 *Design (Develop)*: This phase visualized a new pricing model and assessed its feasibility. Tools used here included service blueprint, rapid prototyping with four game users, and business model canvas.
- 4 *Destiny (Deliver)*: This phase conducted user tests and refined the new pricing model. It was based on testing workshop with four game users.

The process resulted in a new pricing model which was developed for the needs of mobile game industry and based on an empirical research. This included the main elements of a business model, comprising customer segments, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partnerships, and cost structure [3]. Later, the same research resulted an academic research report, thus contributing to the scientific literature [4].

### 3.2 Student's perceptions from using service design

The student's perceptions and learnings from using the service design are described next [3]. They relate to the initial insight, planning and iteration during the process (Figure 2)

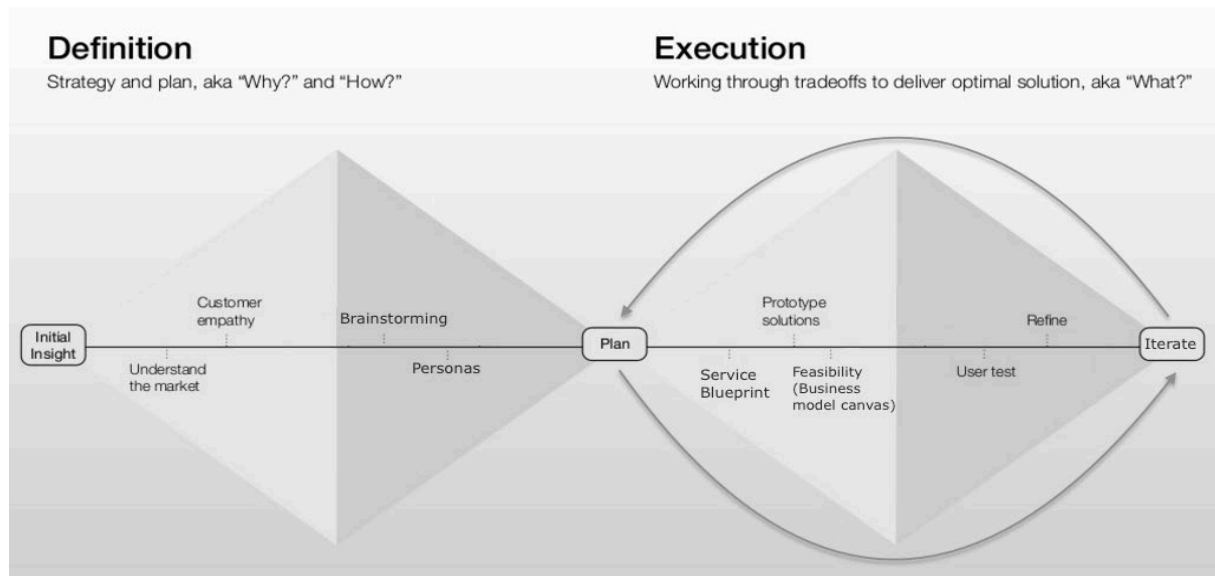


Figure 2. The student's service design process [3, p. 64]

#### ★ Initial Insight

This was the first checkpoint in the double diamond process where the student tried to understand the problem and challenges faced in the current monetization model. This part of the process was divergent, and the main aim was to assimilate a lot of information. The student felt that the good thing about this phase is that he is encouraged to be open to all opportunities and do not start narrowing down solutions. This also helped the student in developing initial ideas on how the future service model would look like. The student perceived that the customer journey map helped him in empathizing with the user and understanding the problem from the customer's point of view. It helped in understanding the pain points in the current monetization model and gave an early insight into issues that needed to be addressed. The convergence phase helped in narrowing down solutions based on the information the student had gathered and also categorize them to the different personas of gamers. Hence, the student perceived that he had a fairly good understanding on how the model being developed should look like and gave ideas on how it could be implemented.

#### ★ Planning

The second key phase was the planning and testing phase where ideas gathered in the previous phase were formulated into actionable service models. The student saw that the brainstorming exercise generated a lot of ideas that were filtered into a condensed set of ideas. These ideas were reformulated, so that they could be fit inside the alternate service model. The student also made personas to check how the alternate model fit into the main classes of gamers.

The service blueprint provided an overview of how the service would look like once it was provisioned and also gave a good understanding of the user's perception at various touchpoints. The student perceived that knowing how the service gets provisioned is important for addressing the various pain points involved in the process. Even the simplest of services involve several systems, partners, and other people working together to deliver the service. The student felt that the service blueprint minimizes and helps coordinating this complexity.

The next step was prototyping the service and testing it. The student perceived that prototyping helped in eliminating ambiguity and accurately implement the service, as it was intended to, and not according to the implementer's own understanding. The student felt that it also helped in quickly demonstrating the key elements of the service without worrying about other parts in the ecosystem. It helped the student to check how the alternate monetization model works without having to worry about the game itself. These helped the student in identifying the problems early on and correct them. The student perceived that prototyping also made sure that he as a designer could exchange feedback with the gamers, who

are the end-users. The student felt that this was an important step in trying to develop a solution, to make sure that it serves the purpose for which it was built.

The student felt that the feasibility study using a business model canvas guided him to think through each of the key components needed for devising a successful business model. The blocks to the left of the canvas are the activities and stakeholders we need for running the business and the right side consists of the customer relationship, the channels of service delivery and many aspects that cannot be directly controlled. In the middle though, binding the two segments, is the value proposition. It defines the core purpose around which all other factors revolve. It is the reason why the business exists. The student perceived that defining this gave him a clear idea of why and how the model would work in the real life.

#### ★ Iteration

After all previous effort, the end product needs to be tested repeatedly, and changed a number of times until all the defects of the model are ironed out. The student did a couple of iterations based on the feedback, but he felt that this is a continuous process that helps to keep the service up to date with the ever-changing market conditions.

## 4 CONCLUSIONS

This article reported on a case in which service design approach is utilized for combining academic research and pragmatic working life innovation project in higher education. It was based on a case study in which new pricing model was developed for the needs of mobile game industry, and contribution was made to the academic literature. The learnings of this article suggest that service design approach was perceived usable and helpful for research resulting in practical solutions and academic knowledge.

Based on this report, the following opportunities for further research can be suggested. Firstly, more knowledge is needed on students experiences in using service design in higher education. The findings shown in empirical study by Ojasalo and Kaartti (2021) [29] may be helpful for that. Secondly, education of service design in higher education is scarcely examined area despite the increasing popularity of service design in the companies and public sector organizations. More research is required of developing competences and curricula for service design education in higher education (cf. [8]). Thirdly, action research combines practical development of organizations and academic research [38]. Indeed, more knowledge is needed about how service design approach and design thinking could contribute to action research methodology, as well as instruction and application in higher education.

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