

Chapter 5

Service Design Thinking Method for Educational Leaders



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Abstract Leading educational work can be a challenge as it includes guiding many different stakeholder groups. This study presents the service design process used to develop a service mobile application aimed at supporting the work of school principals in Finnish Lapland. Design thinking and Double Diamond are co-creative processes used by service designers to approach problems. In these processes, users play a central role in co-designing the service together with the service designers and other relevant stakeholders. This chapter describes the design thinking and Double Diamond methods in more detail and suggests how they can be utilised in the field of educational leadership by using participatory approaches to deal with complex social issues. While design thinking has been implemented widely in management education, it has rarely been applied to educational leadership. However, schools can be viewed as services where several interactions take place and where value is co-created. This study investigates how service design thinking can be applied in educational leadership. The data are based on focus groups and a research diary with field notes. A detailed literature review on how service design has been utilised in educational leadership is also included.

Keywords Service design · Co-design · Design thinking and double diamond · Educational leadership · Social complexities

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Introduction

Today, the educational field faces many challenges that are often considered to be complex social issues. Society changes, and so does education. In an educational organisation, many challenges exist, such as inclusion policies that lack guidance for implementation, increased immigrant and refugee student populations, multidisciplinary cooperation, as well as occasional unexpected phenomena, such as the COVID-19 pandemic. For many educational institutions, it can be difficult to continuously evolve and keep up with demands. Design thinking (DT) used in service design aims to create innovative solutions to the challenges encountered (Stickdorn et al., 2011).

This study will present the service DT and Double Diamond (DD) methods in detail and make suggestions for how these methods can be utilised in the field of educational leadership in Finland through participatory approaches to co-developing solutions to social issues. These approaches or methods are one way of sharing power. For example, Lehkonen (2009, p. 205) studied the phenomenon in Finland, where ‘talking about power and using it do not seem to be allowed in the school culture for principals’. Northern Europe and Finland have practised participatory development for a long time, so it is often taken for granted, as it is practised in contexts where hierarchies are flat (Suoheimo, 2020). In Finland, shared leadership is emphasised in the Basic Education Curriculum (Hyvärinen et al., 2017). Finnish researchers have pointed out that distributed leadership is quite similar to participatory development, with interaction and mutual respect as their foundation (Määttä & Köngäs, 2021). Directors need leadership skills, and they are responsible for the functionality of an organisation. In addition, the educational system in Finland is highly decentralised, as most education-related decisions are made at the municipal or institutional level, with good stakeholder participation (Pont et al., 2020).

DT has been implemented in management education (Kimbell, 2011b), but it has not yet been applied with much depth to educational leadership. Schools can be viewed as services, where several interactions take place and value is co-created (Smeds et al., 2010). ‘Service design’ refers to an approach that was developed from the art and design fields and which emerged around 10 years ago as a separate discipline from interaction design and cognitive psychology (Rytilahti et al., 2015; Sun, 2020). Design itself can be seen as ‘courses of action aimed at changing existing situations into preferred ones’ (Simon, 1969, p. 130), making anyone who has this aim into a designer. This study aims to answer the following research questions:

- How can service DT be applied in educational leadership?
- How can service DT and the DD model support shared/distributed leadership interactions in educational organisations?

The first part of the chapter will concentrate on describing service design and educational leadership (shared/distributed). Then, the DT and DD models will be

outlined, and their application in the educational field to date will be discussed by investigating the current literature. The subsequent sections will present a practical example of a case study of the service DT process, in which both DT and the DD models were implemented to develop a mobile application designed to support the work of school principals in Finnish Lapland. Stickdorn et al. (2011) would most probably call this process ‘service design thinking’. The case study presented here is one example, but the process is transferrable and can be used to address leadership problems through creative thinking and co-creational practices that automatically result in shared leadership. The chapter’s contribution to the field is to introduce the DT and DD models as tools for educational leaders to practise a bottom-up style of shared/distributed leadership in Finland, where participatory practices already exist; these approaches can nevertheless tighten leadership practices and provide tools to address everyday challenges.

Service Design

Service design as a discipline is widely recognised as being built upon five principles: (1) user-centeredness, or placing the user at the centre; (2) co-creativeness, or creating things together with end users and relevant stakeholders; (3) sequencing, or forming an image of the entire process and its sequences; (4) evidencing, or making parts of the system visual; and (5) holism, or drawing knowledge from different stakeholders and participants (Stickdorn et al., 2011). Intangible services are made visible through various visualisations that often show sequencing using maps. Service design traditionally uses blueprints or customer journeys to understand the service process and improve customers’ experiences of it (Vink, 2019). The overall aim is to first build empathy by getting to know the customers, and then later making them part of the design process. Sanders and Stappers (2008, p. 6) view co-creation as ‘designers and people not trained in design working together in the design development process’. Service design crosses social design, where everyone or the community designs for themselves solutions for the problems they encounter (Manzini, 2015). It has also been noted that designers often have difficulties working with or getting the desired results from those in positions of hierarchical power because designers may come to challenge the hierarchical thinking and power in organisations (Johansson & Woodilla, 2008).

Value is also co-created through intangible offerings (Vink, 2019), including in educational contexts (Smeds et al., 2010). When designing services, one might need to consider the entire ecosystem involved as well as the legacies of the organisation under construction (Vink, 2019). This means zooming in and out to look at the bigger picture as well as focus on the details (Vink, 2019). Recent service research has been focused on the relationship between services and organisations (Suoheimo, 2019, 2020; Vink, 2019). When designing systems, a more longitudinal understanding is needed (Hillgren et al., 2011).

Service design inquiry is constructivist or interpretivist, which means that the truth is socially constructed through various perspectives during interactions with others (Munkvold & Bygstad, 2016; Sun, 2020). Constructivism or interpretivism is more concerned with relevance than rigor (Ponelis, 2015). The researchers' own values, actions, interpretations and beliefs will shape the research process (Munkvold & Bygstad, 2016). Sun (2020) acknowledged that this is the most prevalent epistemology within service design, and accordingly, it provides the basis for this study as well. Patomäki (2020, p. 455) explained that the '(...) processual and changing nature of being should be an explicit feature of social ontology'. Social ontology is intertwined with complexity and bound in time, but also, 'social ontology raises fundamental questions about emergence, causation, mind, agency, structure, and such like (...)' (Patomäki, 2020, p. 455).

Educational Leadership: Shared/Distributed Leadership

In this chapter, we delimit 'education' as referring to the teaching–learning process in formal education. It includes both instructional strategies and pedagogical approaches in a hierarchically structured social system, and it leads to formal recognition (diplomas, certificates) (Määttä & Köngäs, 2021). Consequently, non-formal and informal educations are excluded from the review (Melnic & Botez, 2014).

The principles of the Basic Education Curriculum (Finnish National Agency for Education, 2014) followed in Finland emphasises the importance of shared leadership. This type of leadership focuses on cultivating favourable learning conditions. Leadership is reflected in the way the school creates a positive atmosphere that supports the diverse skills and resources of both teachers and students. The Basic Education Curriculum offers excellent opportunities for innovative work, collaboration and the management of well-being (Hyvärinen et al., 2017).

Fonsén (2013) distinguished the following dimensions of school management: the context (contextual leadership model), the organisational culture (distributed leadership), the professionalism of directors (transformational leadership) and the management of substance (educational leadership). The context is the primary determinant of leadership. Clearly defined core tasks can support the enactment of pedagogical leadership, and the structure of the organisation can either prevent or promote it. Distributed leadership emphasises respectful and appreciative interactions within the school community (see Määttä & Uusiattu, 2014).

Sergiovanni (2001, p. 54) used the term 'ideal-based leadership' to denote value-based and shared leadership. Leaders' professionalism and the way in which they adhere to their role and authority are manifested in pedagogical leadership. We can define the concept of 'educational leadership' as an umbrella term that encompasses the various levels of leadership activity. It includes administrative work (administration or management) as well as teaching and interpersonal care

(leadership). The educational leadership of principals includes the management and development of the school and the teaching that takes place there.

Educational leadership includes shared leadership and is similar to the concepts of ‘caring leadership’ (Uusiautti & Määttä, 2014) and ‘love-based leadership’ (Uusiautti & Määttä, 2013), where the leader is able to create and develop teaching and learning relationships that take people’s individual needs into account and use empowerment, engagement, productivity and outcomes to increase efficiency. In this chapter, we will use the term ‘shared or distributed leadership’ as it is similar to the approach practised in service design, which is generally a bottom-up approach within which the power is distributed (Suoheimo, 2020).

DT for Educational Leaders as Collaborative Agency/ Endeavours

This chapter aims to target the wider use of the DT and DD models for educators as tools to implement innovation and change with regard to socially oriented matters (e.g. Brown & Wyatt, 2010; Kimbell, 2011a). This process enables societies to make change happen through innovation (Kimbell, 2011a). In recent years, design has become an important part of policymaking and public services and in organisations where user centeredness is required (Kimbell, 2011a). Kimbell (2011a, p. 293) emphasised Sam Ladner’s (2009, n.p.) idea that ‘design is attractive to management because it is a de-politicized version of the well-known socio-cultural critique of managerial practices’.

DT has been well developed and practised in the Stanford University tradition (Brown & Wyatt, 2010; Stickdorn et al., 2011) and in the DD model promoted by Britain’s Design Council (2019). Both are processes used by service designers to approach problems in a co-creative manner. The users play a central role in co-designing the service with the service designers and other relevant stakeholders. Many other methods, models and variations of these two models still exist within the design discipline, but these two are probably the most popular and widely implemented. The models are very similar but still have some slight differences. The processes become service design oriented when they apply the principles of service design (Stickdorn et al., 2011).

Today, the DT or DD model is commonly taught to future leaders in the management and engineering fields as a method for solving problems (Kimbell, 2011b). Service design can be seen as a management style or a type of shared leadership in which a user-centric approach is applied (Stickdorn et al., 2011). In service design philosophy, the service designer is not a leader, but more of a listener or facilitator, where the aim is to understand (often through ethnography) what the needs of the users are. The user or customer can be defined in various ways depending on who the service is designed for. In the educational field, this may be principals, teachers,

students or the community. Both models begin with a challenge or a problem and end with the delivery of an outcome.

The DD model has four phases: discover, define, develop and deliver (Vink, 2019). It is built on the divergent and convergent phases of the thinking and developing process. One needs to know first what the problem or challenge is (opening phase) by creating empathy towards it, and then they need to define what the challenge is (closing phase). Subsequently, the process continues to develop ideas (another opening phase) and then selects some ideas to deliver by prototyping and testing them (closing phase). These two divergent and convergent phases are illustrated in the form of two diamonds. Figure 5.1 shows these two models joined together, and the DT process is shown inside of the two diamonds.

The DT model has five stages (illustrated as hexagons in Fig. 5.1): empathise, define, ideate, prototype and test (Brown & Wyatt, 2010). Different kinds of design or strategic tools may be applied in the different stages to open or close the data. More practical examples of the tools will be provided throughout the case study described later in the chapter. Often, the process begins with a brief, but it is common to redefine or check its accuracy after the discover and define stages, when the challenge has become more familiar. The process is not linear or read from left to right, but rather it is an iterative process, where a multi- or cross-disciplinary team may go back and forth until a satisfactory consensus is reached. The aim is to fail early on, especially during the prototyping stage, when the ideas are being tested (Henriksen et al., 2017). This reduces the cost of the development process, as the example of the case study provided later will show how it reduced costs in creating an app. The outcomes generally engender change and create value for the ‘user’ (Kimbell, 2011a). Kimbell (2011b, p. 129) even showed how the process ‘de-centres the designer as the main agent in designing’.

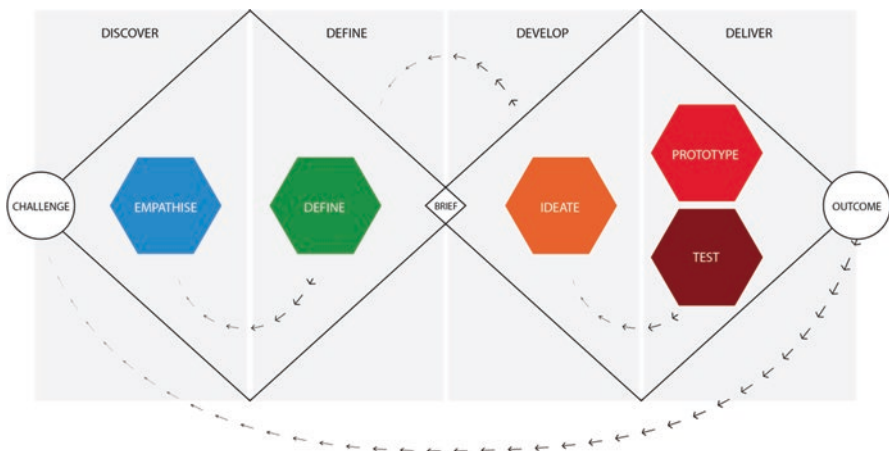


Fig. 5.1 A joined model of the DT and DD processes. (Adapted from Plattner (2009) and the Design Council (2019))

In terms of leadership, the DT or DD process requires a collaborative and participatory leadership approach, since it is based on dialogue and considers various stakeholders' perspectives on the issue at hand. In this sense, the process can serve not only as a tool for development and problem solving, but also as an instrument to increase leadership interaction and distribute leadership during the process. Lahtero et al. (2019) has critically viewed how Finnish educational organisations, current management systems with their management teams, working groups and development projects all allow for the distribution of leadership and responsibility, but in reality, distributed leadership does not necessarily mean true leadership interactions; instead, it can involve more of a delegation of tasks. The position of the principal as the head of an educational organisation and bearer of responsibility has been strengthened since the law was changed in the 1990s (*Basic Education Act 628/1998*), which again can make leadership depend more on the style of the leader of the specific organisation, despite the ideals of distributing or sharing leadership. However, in practice, a principal cannot solve complex problems or develop a community alone and instead relies on interaction and cooperation, which is where service design tools can be helpful.

In the DT or DD process, leadership can be viewed intrinsically as collaborative agency (Raelin, 2016). Ontologically, it can be seen as an on-going process that is formed through a continuous flow of interactions embedded in the specific cultural context of the educational organisation within which the development process takes place (Crevani & Endrissat, 2016). Understood in this way, leadership is transferred, or can be transferred, at different stages of the process, depending on, for example, who has the expertise needed at a given time.

Previous Studies of Service Design and DT in Educational Leadership

A Scopus search performed in April 2020 based on 'design thinking,' and 'education' yielded about 1000 results, with around 100 results from the field of humanities (101). This presented some limitations in terms of selecting and reading the articles. When analysing the results in the art and humanities fields, some relevant articles were found, and these were selected for further reading. Using the term 'double diamond' instead of 'design thinking' gave a total of eight results. A new search that included 'design thinking' and 'education', and 'service design' only identified 15 academic publications. Different combinations of the words were used, and additionally, a desktop search was made to find more relevant publications.

Although the results are not extensive, there are still some novel and interesting examples of how DT, DD and service design have been applied as an approach for educational leadership as a form of sharing and distributing leadership and perhaps questioning hierarchical power structures. Some practical examples can be found for how service design has been applied in the educational context, as Jhaj (2020)

reports how service design and DT were used to shape the academic career paths in a university. Stanford University regularly offers DT courses for K-12 educators to 'build creative confidence and equity awareness that can be applied upon return to their local contexts' (Raz, 2017, n.p.).

Still, we can find examples of how service design is applied as a form of shared leadership and power, as Kuzmina et al. (2012) proposed an alternative view of education as a public service by empowering citizens in the process of making it, which benefits the service itself and its users, especially in the sustainability context. When designing education based on the idea of a sustainable service, they included the students as active participants in the process by making complex issues more manageable. This can be a powerful form of sharing the decision making in educational leadership. It means that educational leaders will need to roll up their sleeves and make the community and students part of decision-making processes by making them part of making sense of the problem and how provide solutions to it. The positive side of this process is that it can help students to take ownership when making decisions and then consequently take new actions towards new sustainable development. On the other hand, it can also undermine the top-down power structures inside an organisation or educational environment, which not all leaders are trained to deal with.

Several authors have proposed using design as a theoretical perspective in the education field (e.g. Henriksen et al., 2017). Henriksen et al. (2017) described how educational players (policymakers, principals, teachers and coordinators) face difficult leadership challenges that might require non-linear and creative solutions. DT is tool for creative problem solving and creates innovations for the problems encountered. More practical examples can be drawn from the use of the DT and DD models in education. Daly-Smith et al. (2020) applied the DD model to incorporate around 50 stakeholders (including policymakers) when co-developing the Active Schools Framework in Great Britain. Including stakeholders as part of the decision-making process is also sharing the power and leadership in this specific context of investigation. A leader will always base their decisions on knowledge, and incorporating the community as way to increase this knowledge is one method of inclusion. In this study, the schools were understood as complex adaptive systems when identifying how to improve children's inadequate rates of physical activity (Daly-Smith et al., 2020).

Henriksen et al. (2017) illustrated, through different cases, how a DT course implemented in the educational field gave educators on-the-ground solutions. Their students reported that using the empathy-building tools had changed their perceptions of other students. Henriksen et al. (2017, p. 146) saw a connection between the empathising approaches used in design and educational philosophy (such as Dewey's), where one needs to 'make learning relate to the experiences of the student'. Service design is essentially about designing experiences and creating empathy (Kimbell, 2011a). During the course, participants learned how to see a problem from different perspectives by examining new angles. Empathy building is an essential quality and can be used as a tool for sharing leadership. Here, the aforementioned concepts of 'caring leadership' (Uusiautti & Määttä, 2014) or

'love-based leadership' (Uusiautti & Määttä, 2013) are of value, as they consider individual needs and aim to achieve empowerment and engagement. Regardless of the context, empathy building may be key to the practice of these kinds of leadership styles, recognising that empathy building is the foundational building block of service design. The 'leader', often called a facilitator in service design, takes on the role of the 'other' that can be the user, the student, parent or an actor in the ecosystem.

By analysing the literature on the use of the DT and DD models in education and educational leadership, we can conclude that there are several ways that these methods have been or could be applied. The examples show that it has been applied in policymaking, but on a more practical level, in educational leadership as well. Not many studies concentrate on this type of leadership in practice, but more on the context of how these methods can be applied in terms of understanding challenges.

We wish to fill the gap in the literature related to the use of service design as an approach in educational contexts, using the DD and DT models, from the perspective of shared/distributed leadership. The Scopus search performed with the terms 'shared leadership' and 'service design' yielded a total of two results. One was about providing services for elderly people from a shared leadership perspective (Brocklehurst et al., 2018) and the other was about ecosystems and concluded that 'shared leadership has the potential to be an institutional arrangement that facilitates service-dominant logic and the value co-creation process' (Johansson & Woodilla, 2008, p. 159). The Scopus search with the terms 'distributed leadership' and 'service design' did not yield any results. We see that our study is quite novel, as our intention is to incorporate service design as a perspective and facilitation method for educational leaders to share leadership in the field of educational leadership.

Case Study of Designing a Mobile Service for Principals to Enhance Their Work as Leaders

This single case study was situated within the project called School Leadership in the Arctic (ArkTORI). The aim of the project was to support principals in developing schools from the perspective of strategic competence management and leadership. One deliverable involved creating a mobile application to strengthen principals' professional development by using service design facilitation. The process of developing the mobile service applied a shared/distributed leadership approach.

Research Design and Data

The research for this case study was carried out using the methodology of 'research through design' (Zimmerman et al., 2007), a common methodology in service design or design research that applies the DD and DT models. The data were collected from the different points of the DT and DD models, illustrated in Figure 5.2. The process follows DT and DD methods, and different tools were

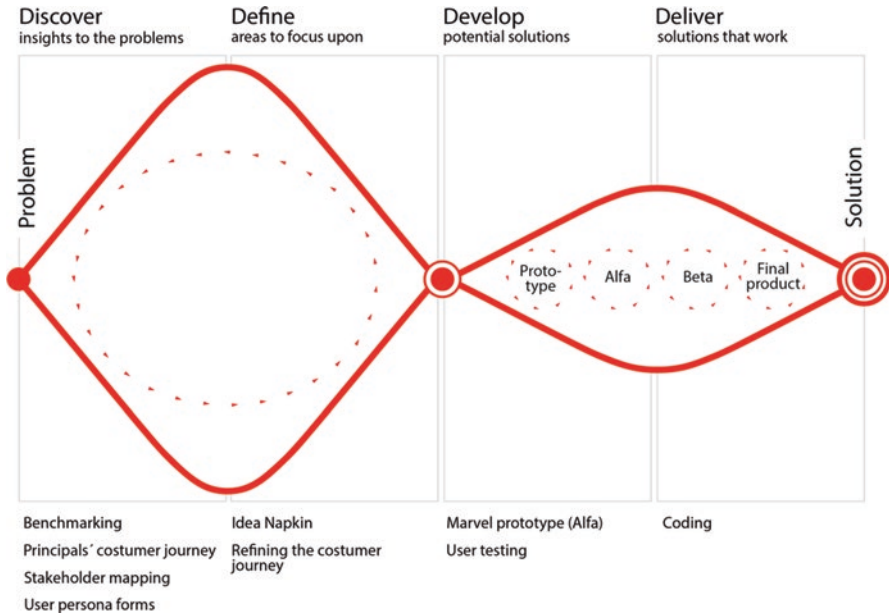


Fig. 5.2 The case study's joined DT and DD process and some of the tools used

applied in each of the four stages: (1) discover, (2) define, (3) develop and (4) deliver. The qualitative data consist of focus groups and a research diary with field notes made by the first author, who participated in the project in its second year. In total, six focus groups with school principals took place up until the delivery phase, and five separate online interviews were used to validate the data and the planned direction of the study.

Several team meetings were held to outline and discuss the content of the focus groups and interviews with the school principals. In the meantime, there were multiple phone calls and emails to discuss some of the issues in greater detail. As the dataset was large, in this chapter we report the parts that were essential in taking the project further and reaching its goals in designing an application to help the school principals' work. The process has had a strong cross-disciplinary focus, as the researchers and developers came together as a team to work collaboratively through shared/distributed leadership. The main collaborators, in addition to the school principals, were education and design researchers, as well as software engineers.

Limitations of the Study

The study is qualitative in nature, and certain research limitations should be considered when applying it to other contexts. As researchers, we may have experienced prejudice or bias when carrying out the research, and these could have influenced

the results (Long & Godfrey, 2004). The study was conducted in a specific geographical setting (Long & Godfrey, 2004) and involved principals from the Finnish Lapland. A different set of stakeholders could bring different kinds of results (Long & Godfrey, 2004). Generally, qualitative research is hard to replicate, although case studies can bring results that ‘give insight into problems that reach beyond the individual case’ (Buchanan, 2001, p. 18).

The Service DT/DD Process

Discover and Empathise

The whole process began by empathising with the focus group: the principals. The participants each filled in a ‘persona’ form. This form contained questions about what each principal’s motivations or goals were and defining the problems they would like to solve. Using the information gathered, as well as complementary information gathered later on, such as statistics on consumer behaviour, an overall image was formed of the group. In the same focus group, the principals completed an activity that involved filling in a journey of the school year of the issues they had faced during the year (Fig. 5.3). The first row describes the activities, and the second gives different indicators. The third row illustrates the principals’ feelings, and the last reveals the needs that the principals identified each month.

Another activity was to make a stakeholder map, which included global, national and local actors and those that they were in close contact with. This activity gave our team a good general picture of whom the principals were in contact with during their daily activities.

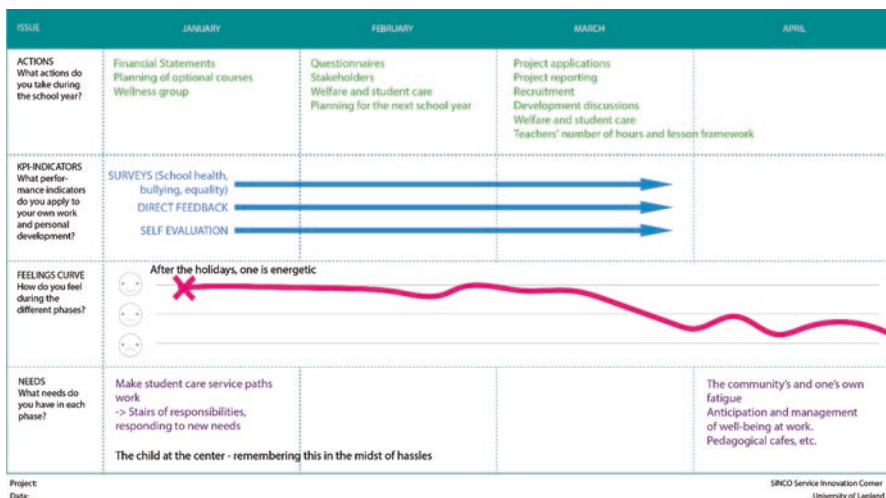


Fig. 5.3 Template of the first 4 months of the principals’ year in the form of a journey

Define

In one of the focus groups, the principals expressed how the application would be more useful for them if it had more features, rather than just a development plan for personal progress, which was the initial idea for the project’s deliverable. An Idea Napkin (Ely, 2018) was used to identify the ideas and needs that the principals had. From this exercise, five different areas were raised as topics for further development. One central need that was identified was a year clock or a way of planning work. The application features that the principals had requested were filtered accordingly, keeping in mind the budget and the focus of the ArkTORI project and using minimum viable product principles (Moogk, 2012), which means using the minimum required resources to make the app functional.

Develop and Deliver

Based on the results of the first two focus groups, the internal team planned a third focus group, where the ideas were presented in a wireframe to illustrate the preliminary contents of the application. This visual form helped the internal team to discuss and further develop the application. Figure 5.4 shows some screen shots of the contents. Using a fourth focus group followed by some follow-up meetings with the principals, the internal team and the researchers, the prototype was refined further. Each application feature, such as the mentoring section, had its own round of editing. The process included many iterations to perfect the contents. Usability testing also played a role in making the navigation of the application smoother. As Henriksen et al. (2017) wrote, the idea of prototyping and testing is to fail early on, which prevents the use of more resources in later stages.

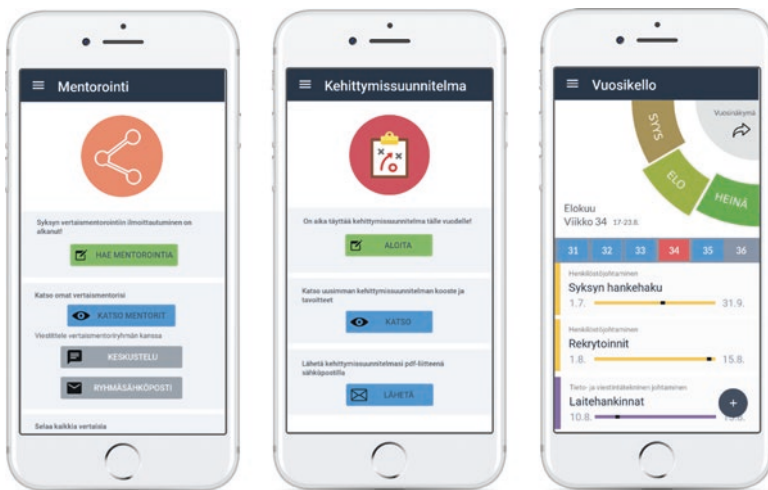


Fig. 5.4 Screenshots of the interactive prototype in Marvel

Results

The process of making a mobile application for principals was designed using the DT and DD models. Essentially, the process and service design helped to answer the questions of why a mobile application is needed and what needs the principals have that the application could address. Here, we have provided some examples of tools that can be applied in the opening and closing phases of the process, but which could be used in other leadership challenges as well. Many of the visual data were gathered through templates. The notes and observations from the focus groups and the research diary helped to keep the focus on the principals' needs during the process.

The focus groups and interviews were the main ways of making the principals part of the process. The COVID-19 situation at the time of the study created some challenges related to meeting in person; thus, some online interviews were conducted as well. The principals were busy facing the new challenges of the pandemic, and the short interviews were a way of confirming what had already been done and identifying a new direction for the development process. The focus groups were also carried out online, as travelling had become more difficult, and public health authorities had recommended against making unnecessary journeys. Adapting collaboration and co-design techniques to the process was also a way of listening and creating empathy towards the needs of the school principals in this situation.

Currently, the process is in the prototyping alpha phase. Later, more specific user studies will be conducted to test the different versions. During the design process, the first step was to empathise with the users in order to get to know them and their needs. Next, these needs were refined in the 'define' stage and then developed through the first prototypes. Ideas were generated, prototyped and tested. Marvel's online application serves as an easy way to test the first drafts that have been refined into alpha versions before the beta and final versions are completed. Four iterations will be presented in the final stage. The users (the principals) were involved in close collaboration when performing each step of the process to ensure that the service would meet the school leaders' and principals' requirements and needs. The process was not linear, as we went back and forth through the stages, depending on which part of the application was being designed.

Findings and Discussion

This study began by investigating how service DT can be applied to educational shared/distributed leadership. This was illustrated through the literature review showing applications of the DT and DD models in the educational sector. This chapter also provides a practical example of a service process, where principals took part in the ArkTORI project. The same principles of making development can be applied to other leadership challenges in the educational field. Collaborative workshops, interviews and other creative methods can help direct educational

leaders towards participatory leadership styles, as we see that shared/distributed leadership resonates a great deal with service DT, where a bottom-up approach is practised.

The process applied in the case study shows how power has been distributed at various stages of the process, especially to the end users, namely, the school principals. Their involvement has been essential to discovering their needs and how to meet them. Initially, the application was designed to help principals follow and improve their leadership skills by performing self-evaluations based on answering a questionnaire. In the early focus groups, the principals sincerely expressed how they thought that they would not download the application and use it based on one feature alone. This made the project team re-evaluate the purpose of the application to make it more inclusive of the general needs that principals have. Features were added, such as the principals' year clock and the peer-mentoring section, suggestions that the principals offered themselves to make the application more valid for their everyday life. Service design thus provides tools for listening, creating empathy and directing a project's strategy towards the end users' needs. In this way, the decision-making power was given to or shared with school principals.

One practical example involved deciding when to start peer mentoring and send messages to the school principals to participate in it. The team logically thought that this could take place twice a year and that the application could send a request when the school year starts in August and then a second one in January, when the second semester starts in Finland. However, the principals were asked about this, and the results were surprising. Based on interviews with three principals, they were unanimous in their opinion that the worst time would be August (the beginning of the school year) because it is the busiest time of year. They thought that September would be a better month for the mobile application to send a request for peer mentoring. This example shows how service design emphasises the users' perspective, does not allow the team to make the decisions for the principals and always aims to receive final confirmation from the users themselves. In this manner, we see that the service design philosophy and the DT and DD methods can be helpful in sharing decision making and not making prejudicial assumptions.

Uljens and Nyman (2013, p. 43) wrote that in Finland '(...) principals today are expected to work more actively as educational developers and leaders in all schools, they may be differently prepared for the task due to the differences in their studies in education'. As we saw in the case of Henriksen et al. (2017), offering a course in DT could be one way of capacitating the future educational leaders in Finland as well. As Pont et al. (2013) recognised that power is already shared in decision making in the educational system in Finland, service DT is one method for strengthening the on-going good work already being done. Additionally, the ArKTORI project's use of service design as a guiding principle for development work shows how the educational field is working holistically and in a transdisciplinary way (Suoheimo et al., 2022).

The process has taken a long time, and without the participatory approach and development, the whole process would have been quicker. Nevertheless, it is still estimated that the time invested in the early design phases is less costly than the time

that it would take to remake the design later on (Bragança et al., 2014). We believe that this can also be the case for educational leaders. If one leader makes the decisions alone, it is much faster to proceed and move forward, but it can become a costly and lengthy process at the end if the direction was not right from the start. Taking the stakeholders, whoever they may be, into account as part of the process in addressing educational leadership challenges can save educational resources in the end. The DT model has been proposed to handle the wicked problems (Pyykkö et al., 2021; Suoheimo, 2020) that are common in educational leadership challenges in Finland (Korva et al., 2021).

In service design, there has been some criticism of the literature for having a ‘sales’ tone (Vink, 2019). However, not all services directly aim to create economic value. Value can be defined in various ways and in the short or long term, especially when designing in public service contexts, of which education is one example. In education, value can be defined as the value of learning for the students (Smeds et al., 2010) or the experience of learning. A school or a nationwide educational network is a large ecosystem to design. The ecosystem can also include subservices such as the matriculation and enrolment of new students and services for teachers to orientate their career paths, and it can foster interactions with the community, amongst other things. Without understanding the basic principles of service design, it might create some challenges to manage, develop and lead services in the educational field.

Using service DT is one way of practising shared/distributed leadership. Service design is about distributing power. The epistemology departs from the view that truth is constructed together through social interaction (Sun, 2020). Historically, participatory design and co-design have had a great deal of influence on design and service design practices in which power is given to the community or the user (Sanders & Stappers, 2008). It would be interesting to observe future studies on defining the similarities and differences between participatory design, co-design and shared/distributed leadership. In the design process, the service designer is viewed as a facilitator or mediator of the process, similar to the role of a shared or distributed leadership. As Hoch (2012) defined shared leadership, it seems to have similarities with service DT, as the decision making, as well as responsibility for the outcome, is shared. This kind of approach aids in creating more agency.

The case study described here explains how the process of developing a mobile service for principals has been a cross-disciplinary undertaking that has included various stakeholders in the process. This is also a similar need or requirement for leaders in the educational field, as the problems are complex and wicked. The educational field could use the DT and DD models as methods for teaching future educational leaders how to tackle challenges through creative-thinking processes. Such techniques could also help to deal with many educational challenges, from the political to practical levels of implementation. The educational field could implement the design and management field practices of DT and DD, as those in this field have a longer history of applying these methods. As the literature pointed out, these methods have been applied in the educational field but to a lesser extent, and their use still seems to be novel. More future studies should be carried out to investigate,

through case studies, how service DT could be used to add value and share decision-making power through distributed/shared leadership.

Often, social challenges are unique, and existing tools and methods need to be adapted to them. Service design has many method banks, and the service designer-facilitator often uses these tools according to the challenge at hand. The transferability potential of the methods and tools is large, as they can be used for micro-, meso- or even macro-planning as in the case of wicked problems (Korva et al., 2021; Suoheimo et al., 2020). Wicked problems are policy-level problems (Rittel & Webber, 1973). This specific case study is limited to one very specific development example on a micro-level.

Service design and its way of understanding social complexities through its constructivist epistemology enables it to define the fuzzy social ontology of the being. The first stage of the DD/DT process is designed to create a shared understanding of a complex, often social, situation. It is not in vain that the first stage is defined or understood through a 'Fuzzy Front End' process (Alhonsuo, 2021). In this manner, service design and the DD/DT model can serve as a tool for educational leaders to create a shared understanding independently of what the situation in the greater educational world may be. Through DT, one can ask what the key dimensions and strategies are for guiding culturally responsive and socially just school leadership praxis.

Conclusions

As Stickdorn et al. (2011) have pointed out, the service design work in terms of creating the application has been essentially holistic and user-centred, and the value has been co-created. These are values and principles that are also essential for shared and distributed leadership styles. Creating empathy towards the challenge and the people in question is the key to creating creative solutions. During the process, many visual tools can be used to show sequencing, such as the principals' year clock in this case study. Many stakeholders have been involved in the cross-disciplinary development process. The chapter presented service DT/DD principles and methods that we believe could aid future educational leaders as they work on a daily basis in the midst of many educational services.

We recommend courses on service DT for future educational leaders. We believe that service DT could be seen as an approach for sharing/distributing power within decision-making practices. This may also influence the ownership of the decisions taken, which is often a challenge for principals or other stakeholders involved in educational leadership. It can also save resources in the long term, as the methodology includes a variety of stakeholders as part of the co-creation process, thus ensuring that the right issues, or the "why," will be answered. The costs are higher at the start, but this will be paid back at the end of the process, as it ensures the fuzziness of the process is handled in the beginning and not at the end.

Service DT can be implemented in various ways, such as through designing nationwide, community-level or school-sized services that may be digital or non-digital in nature. Service design tools can create practical ways to involve parents, students and communities in core decision making, thus sharing/distributing educational leadership in Finland, which already has a history of holistic shared decision practices.

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