Service design and the co-production of public policies: The case of RedActiva

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Abstract

The role of a citizen is not to be a beneficiary of a service delivered by a public agency, but a co-producer of the same service. Interaction between the public sector and citizens therefore needs to be carefully designed in order to accomplish a co-production of public policies. Service Design could contribute to a better design of this interaction and co-production between the two parties. A case study of the project *RedActiva* in Chile, focused on promoting and facilitating urban mobilization of the elderly, highlights some of the contributions that Service Design could provide to public policy design from a citizen-centric approach.

KEYWORDS: aging, urban mobility, smart city, service design, public policy co-production, user-centred design

Introduction

In the 1960's, Chile was an underdeveloped nation of South America, fighting the battle against child mortality through vaccination, health assistance, nutritional programs and the provision of other critical public goods. Almost sixty years later, Chile is a middle-income country with the lowest rate of child mortality in South America, very close to the OECD members' average (World Bank Open Data, 2015). Nowadays, one of the biggest public health challenges is child obesity. Currently, Chile has the third highest level of obesity in children under 5 years old in Latin America (FAO and OPS, 2017).

Although undernourishment was a serious public problem, following Rittel and Webber's (1973) definition, it was a "tame" problem: easier to define and with clear implementation solutions. On the other hand, child obesity is a "wicked" problem, ill-defined and with unclear causal relationships and dynamics (Bason, 2017). While child mortality can be addressed by delivering public products such as vaccines and nutritional supplements, child obesity needs a more holistic and complex approach of products and services involving health, education, provision of quality public spaces, promotion of physical activity and

nutrient regulation, among others. Moreover, to reduce child obesity, policies require important co-responsibility from parents and the food industry, which is difficult to achieve.

The current global challenge for public policy is the need to address more wicked than tame problems. This challenge comes with a growing level of complexity. According to Head and Alford (2015) "*for the decision maker, complexity and diversity create higher levels of uncertainty or ambiguity.*" Traditional public policy approaches based on a problem-solution design and implementation do not fit adequately with uncertainty and complexity, adding additional complexity to the process. It is precisely at this point where design enters the picture, or as Christiansen and Bunt (2014) state, "*the complexity is where the concept of design becomes relevant.*"

According to Bason (2017), design can make a significant contribution to policy makers by contributing to the understanding of the underlying causes of public problems, generating alternative scenarios and implementing new practices. Additionally, design can aid in the anticipation of user experience, ideation and rapid prototyping of new proposals with a systematic approach (Mulgan, 2014).

The role of design in the public policy process becomes particularly important when citizen participation is required. As Alford (2009) points out, the role of the citizen is not to be a beneficiary of a service delivered by a public agency, but a *co-producer* of the service, actively contributing to create private and/or public value. Without citizen co-production, it is not possible to achieve the goals of public organizations or to successfully deliver their services. In the case of child obesity, for example, it is clear that public policy success depends strongly on the co-production of parents, family and children, in order to promote and achieve healthy food consumption practices as well as adequate physical activity. Consequentially, interaction between public policy and citizens needs to be carefully designed in order to attain a successful co-production of public services by organizations and citizens.

Service Design can contribute to a better design of the interaction between citizens and public services. According to Sangiorgi (2009), the origin of the Service Design domain is the rise of the *Interaction Paradigm* and its consequent focus on the interaction between the user and supply system. This paradigm is still evolving, from an interface between a producer and a user, to an interface among users allowing relational qualities and collaborative opportunities (Morelli and Götzen, 2016). In this sense, Service Design can contribute to the public policy domain with the design of "*the tangible elements that enable the desired experiences to occur in a coherent way,*" (Sangiorgi, 2009), or, rephrasing Alford's concept of co-production, by designing the elements or conditions that enable the co-production of public services by their users.

The research question of this paper is exploring how Service Design can contribute to a better design of the interaction between public policy and citizens, and what kind of methods and processes could narrow the gap that currently hinders the co-production of users in many areas of public service delivery. A case study of the project *RedActiva* in Chile, focused on promoting and facilitating urban mobilization of the elderly, highlights some of the contributions of a Service Design to public policy redesign from a citizen-centric approach.

This paper is structured into three sections: first, it analyses demographic changes in Chile and the challenges brought to public policy, highlighting urban mobility of the elderly. Secondly, the paper develops a case study of the *RedActiva* project. Based on this case study, the paper explores how a Service Design approach in the development of the project helped bridge the gap between the Chilean public policy and citizens; facilitating the co-production of services and policies. Finally, the last section reflects on the lessons learned from the case study and the contribution of Service Design to public service design and implementation.

The new challenges of aging populations in Chile

Populations are ageing all over the world. According to the United Nations (2017), there are currently 1 billion people aged 60 years and older worldwide, with a growth expectation of 2.1 billion in 2050 and 3.1 billion at the end of the 21st century.

Although ageing population is a worldwide phenomenon, some regions will face changes faster than others, and in shorter periods. While Europe has and will continue to face a slow and constant increase of the elderly over a period of 150 years, from 12% in 1950 to 36% in 2100, other regions such as Latin America and the Caribbean will face more drastic changes: in just 75 years, the elderly population will increase from 11% in 2015 to 37% in 2100 (see Graph 1).

Graph 1
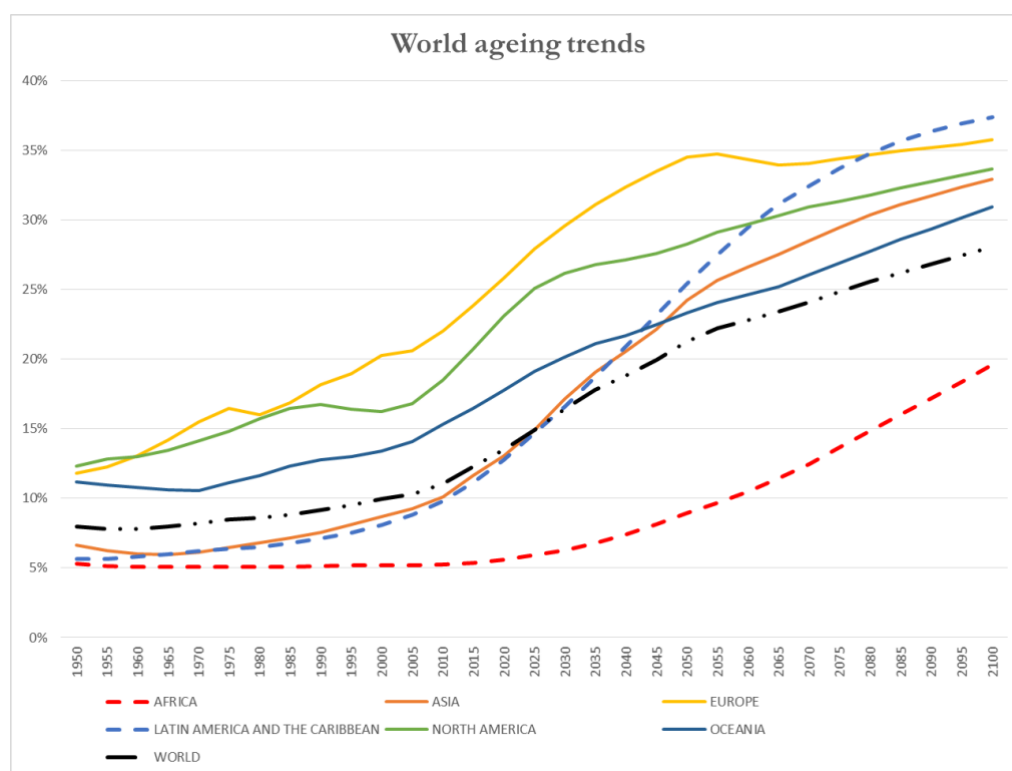
Source: Elaborated by the authors based on facts of United Nations (2017).

Latin America, and particularly Chile, has been facing a dramatic demographic change since the beginning of the 21st century. The Chilean population aged 60 years and older has increased from 11% in 2000 to 15% in 2015, and is expected to increase to 39% in 2100 (United Nations, 2017). According to these estimates, Chile will have a greater proportion of elderly citizens than the average of all world regions at the end of this century (see Graph 2).

Graph 2

Aging trends: Chile vs the regions
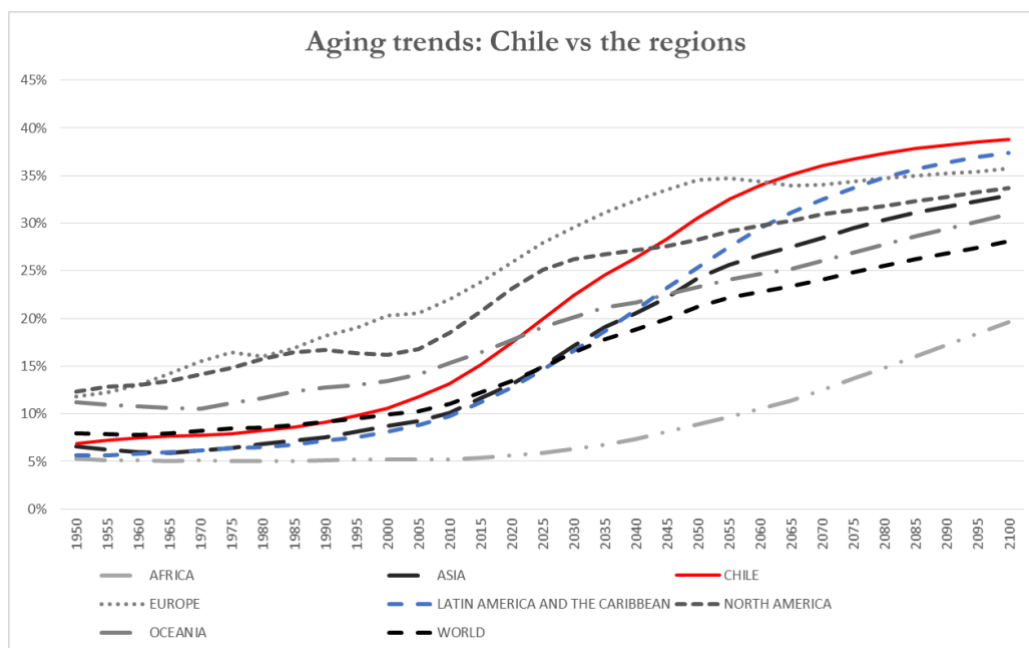
Source: Elaborated by the authors based on facts of the United Nations (2017).

This demographic change of the Chilean population means more people living longer and with better health. As the Design Council (2012) points out, older, able-bodied adults in good health want to remain independent and live their lives the way they want. They not only need health care or assistance programs, but they also continue to look for opportunities and means to develop personal projects and interests.

Despite the magnitude of this demographic trend, Chilean public policies aimed at the elderly have remained basically unchanged over the past fifty years. These policies are mostly based on a traditional vision of the elderly as people who are retired, experiencing physical and cognitive impairment, and in need of care and protection (Centro UC Politicas Publicas, 2017). Public programs for the elderly offer mostly healthcare and nutritional supplements, residential assistance, entertainment workshops, tourism and physical activities. However, these programs do not recognize that the vast majority of today's elderly have the health, vitality and autonomy necessary to continue being active contributions to society.

According to LIP (2017), a critical issue for active older adults is the growing discomfort and difficulties they experience when travelling around the city, diminishing the possibilities they have to live the autonomous and independent life they want to live. Hence, urban mobility is a critical threat for the autonomy of older adults; however, this problem has not been adequately addressed by Chilean public policy (LIP, 2017).

Urban mobility and ageing

Mobility can be understood as the "*movement or the potential to move*" (Burnett and Lucas, 2010). In this paper, the concept of urban mobility refers to travel experiences outside of the home and throughout the city.

According to Metz (2000), the quality of life of older adults is closely linked to mobility. As Kenyon et al (2002) points out, restricted mobility causes a lack of access to opportunities, social networks, goods and services, therefore generating social exclusion. In the case of the elderly, mobility enables them "*to achieve access to people and places necessary for life maintenance, life satisfaction, and emotional well-being*" (Spinney et al, 2009).

For older people, "*public transport and walking are more important for their independence, since their driving ability is decreasing*" (Su and Bell, 2009). Walkability of a city therefore becomes critical to the elderly in order to promote physical activity and social interaction with others (Zeitler et al, 2012).

The urban mobility of the elderly is "*an indicator of autonomy and maintenance of personal identity, given that it makes possible the maintenance of other significant activities*" (Gajardo, 2012). In this sense, mobility is a condition to enable older adults' participation in society (Zeitler et al, 2012).

Mobility is part of the WHO agenda to build Age-Friendly Cities (AFC): places where "*policies, services, settings and structures support and enable people to age well*" (WHO, 2015). The agenda of AFC includes the improvement of green spaces and outdoor seating, well-maintained pavements, availability of public toilets, secure pedestrian crossings, accessible, reliable and frequent public transport, among others, all of which are key aspects for the elderly' mobility. However, as Buffel and Phillipson (2016) point out, "*AFC policies have often not moved 'very far beyond statements of values and aspirations,*" mainly because of the large budgets they require.

RedActiva, a case of how Service Design can transform public policy paradigms

RedActiva (Active Network) is a Chilean public-private partnership initiative intended to promote the independence of older adults by encouraging their mobility and reducing the barriers encountered when traveling throughout the city. The project was developed by the Laboratorio de Innovacion Publica (LIP)[1] of the Universidad Catolica de Chile, with the support of the Asociacion de AFP de Chile[2].

RedActiva is comprised of a system of urban devices designed to facilitate and promote the mobility of older adults. The basic platform of *RedActiva* is a low-cost technological wearable device that allows users access to functionalities of components installed in the city. The device, a silicone bracelet named *BandaActiva (*Active Band), was designed for people 70 years of age and older, and has the ability to store and transmit data using RFID (Radio Frequency Identification) technology and incorporating a MIFARE Classic 1k (or compatible) chip inside (Picture 1). The cost of the device is estimated at 2 dollars per unit, constituting a very low-cost solution compared to other initiatives aimed at promoting mobilization of the elderly.

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[1] The Public Innovation Lab – www.lipuc.cl
[2] The Retirement Fund Administrators' Association - www.aafp.cl

Picture 1

Justine Graham (April, 2018). The *BandaActiva*, a silicone band with an electronic chip inside, is the key to access all of *RedActiva*'s components.

Several tests of possible platforms for the technological device were performed in order to determine which were the most appropriate for participants. Initial ideas included the use of a card, rings and necklaces. *BandaActiva,* was preferred by the elderly due to the ease of use, and because of its resemblance to accessories already used, such as watches and bracelets. The testing phase also helped discard the use of GPS or other complex technologies, due to their elevated cost and the need to be charged, adding extra complexity for users.

During March of 2018, a *RedActiva* pilot program was launched in downtown Puente Alto, a low-income county in Southern Santiago. Five thousand bands were distributed among the elderly, giving them access to different functionalities such as longer crossing periods on traffic lights, free access to restrooms and preferential stops for public transport. The initiative involved replacing the traffic light crossing button with a new model that includes a sensor that is activated using the band to provide an extra ten seconds during the green cycle (Picture 2). The pilot also included the component *RutaActiva* (Active Route) where the elderly use their bands to register their walking through sensors installed along the way, in order to collect points that will translate into benefits for them and their "elderly club."

Justine Graham (April, 2018). Woman using her BandaActiva to activate extra crossing time in a traffic light in downtown Puente Alto.

The design of *RedActiva* includes potential future functionalities such as serving as a payment method for public transport, providing preferential access to public and private services, and signaling the presence of the elderly in buses and the subway to make preferential seats available to them, etc. (Diagram 1). *RedActiva* makes the technology and the *BandaActiva* available for public and private services that wish to add new functionalities aimed at facilitating mobility of the elderly throughout the city. In this sense, *RedActiva* and its components are expected to grow as new partners enter the project.

Diagram 1

RedActiva User Journey Map

Trip stage	Planning for the trip	During the trip		RutaActiva	After the trip
Actions	Planning for the trip	Leaving home and accessing public transport	Traveling throughout the city and access to services	RutaActiva: An incentive to walk	Journey back home
RedActiva components used	**RedActiva Map** to plan the trip with location of benefits **BandaActiva** to access the benefits of the RedActiva network	**Preferential bus stops*** **Totem poles** to access taxi services*** Using the **BandaActiva as a payment method** in public transportation*** **Light signal on preferential seats*** *among others**	**Friendly street lights** with extended crossing time **Free access to restrooms** in the city **Preferential access** to public and private services**	**Totem pole that collects walking data** of elders on the RutaActiva (Active Route)	**Preferential public transportation stops** * Potential benefits and services

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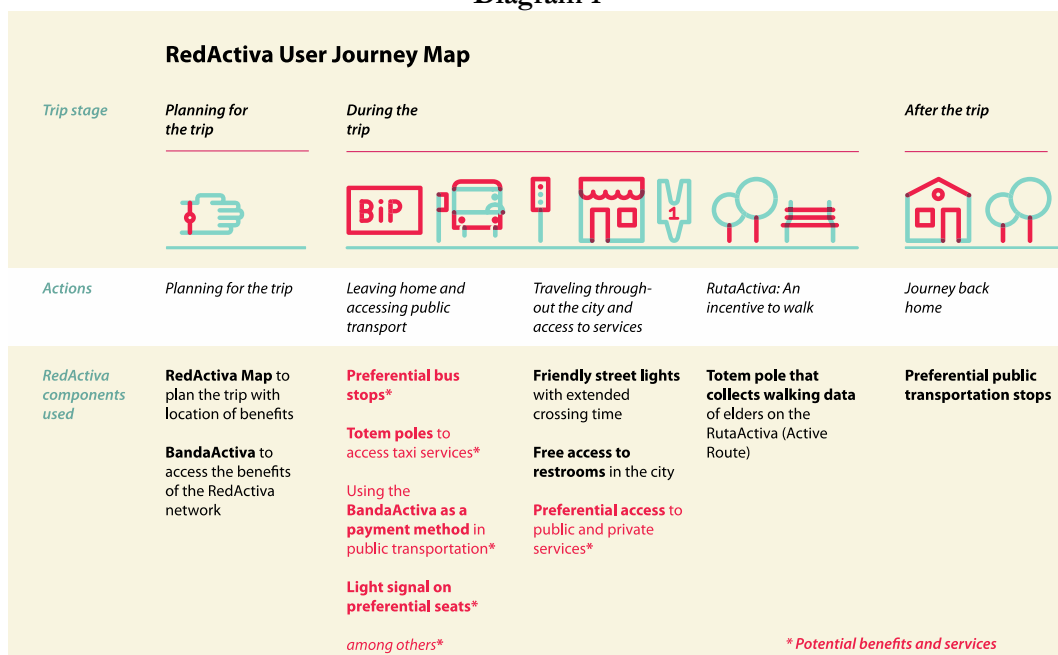Linköping University Electronic Press

Diagram 1: User journey map highlighting RedActiva's components

The user journey map as a tool to evidence gaps in public service design

Older adults are permanently encouraged to participate in services designed for them. Due to the rapid growth of the elderly in Chile, public services are providing a growing number of activities for this age group such as handicraft workshops, exercise classes and computer training, among others. However, while the activities and services designed by the public sector have a strong focus on the activity itself, they do not take into account the context where these activities take place. With this in mind, LIP decided to find out the needs of the elderly, beyond just the activities offered by Municipalities, as a way to connect the offer to their everyday lives.

User journey maps provide a graphic overview of the process involved before, during and after the service provision, in order to deliver more meaningful and pertinent solutions. By applying this tool to the services provided by Chilean Municipalities, an important gap in service began to arise. Research confirmed the importance of doing activities outside the home, such as being able to run errands, shop and meet others. These activities made them feel vital, happy, active and connected to other people; however, most people had experience difficulties and obstacles during their trips around the city, discouraging them to perform these beneficial activities (Diagram 2). Mobilization could therefore be considered an important enabler for the elderly to perform activities outside the home and live more fulfilling lives.

Diagram 2

User Journey Map: Problems accesing elder services

Trip stage	*Planning for the trip*	*During the trip*		*After the trip*
Actions	Planning for the trip	Leaving home and accessing public transport	Traveling through-out the city and access to services	Journey back home
Problems encountered and/or observations	Difficult to find information of elder services offered. This age group has limited access to information technologies such as the Internet

Elders leave home with very few objects to avoid losing them on the street or losing their balance | Buses do not stop close enough to the sidewalk; risk of falling when boarding buses

Taking out the payment card for public transport, some elders fear losing their balance

Preferential seats in buses and subway are taken and people do not notice the presence of older adults

Big crowds mean greater chances of falling, discouraging elders from leaving home at rush hours | Street lights do not offer enough crossing time

Elders require to use the toilet more frequently. No availability of public toiles in the city

Many private and public services do not offer preferential waiting lines and facilities for elders

Lack of smartphone use in older adults leaves them out of online taxi services *(Uber type apps)* | Difficulty to board "colectivos" and other public transport systems because of big crowds. Source of uncertainty for older adults |
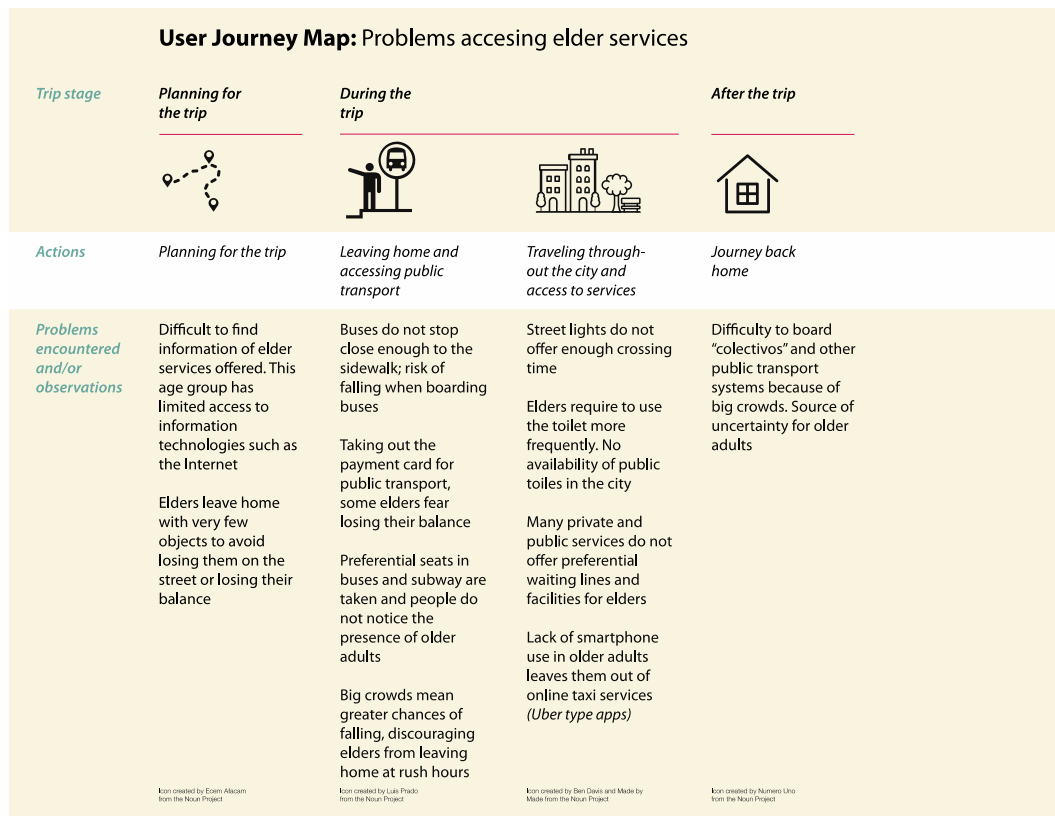| | Icon created by Eoem Alacam from the Noun Project | Icon created by Luis Prado from the Noun Project | Icon created by Ben Davis and Made by Made from the Noun Project | Icon created by Numero Uno from the Noun Project |

Diagram 2: User journey map of the travel experience of the elderly in the city and the problems they encounter in the process. The observations exposed here are the result of an ethnographic study developed in Santiago in 2016.

In order to build a user journey map, research was done during the initial stage of the project through a 2016 ethnographic study in Santiago. The main purpose of the study was to learn how the elderly travel around the city and the problems they face in the process. Another goal was to identify how their sense of independence, autonomy and personal identity were affected by the ability to leave their homes.

The research consisted of observing the trips of participating the elderly, from a place of origin (usually their home) to their destination, identifying both their motivations to leave their home and the strategies they used to perform different tasks before, during and after the trip. The study involved 16 adults over 70 years old, residents of 8 different counties in Santiago and from diverse socioeconomic backgrounds. Researchers participated in the travel experience by following participants throughout their trip, observing the way they carried out the different tasks. When the trip was completed, the researcher interviewed the participant in order to gain greater insight into their perceptions of the travel experience and a final reflection of what this means in the wider context of their current stage of life.

Research findings from this phase showed that the elderly's trips outside the home are usually part of a routine, and to places they know; it is difficult for them to plan and discover new routes. They avoid peak hours, crowded streets and public transport. Their main fear when leaving the home is being an assault victim and losing their balance which could then result in a fall. Accidents such as falling can be disastrous for the elderly, since it could result in prolonged bed rest, which can accelerate physical and psychological deterioration.

The scarcity of public toilets in the city was another problem identified by study participants. As part of the physical aging process, more frequent visits to the restroom are required, so the lack of these facilities could be an important discouragement for leaving the home, or imply a reduction in the distance they are willing to travel.

On a different note, many older adults recognize that, over the years, they begin to walk at a slower pace and are less able to react quickly on the street. This creates new problems, such as having difficulty crossing the street during the green light or to deal with uneven sidewalk surfaces.

The public transport system was another source of problems for the elderly when moving around the city. In the case of buses, the distance between the bus and the sidewalk at bus stops causes them great difficulty when getting on and off the bus. Most reported asking for help with boarding the bus, due to the risk of falling in the process. Once on the bus, there is a lack of support bars and adequate space, making them perceive public transport as risky and uncomfortable. Their appreciation of the subway wasn't any better; they have problems with the long stairways and they report lack of respect for preferential seating by younger people who ignore the preferential seating signs. Finally, they feel discriminated by taxi drivers who, according to their report, do not necessarily stop on their demand and prefer other types of passengers with less mobility restraints.

The user journey map allowed the research team to view mobilization as a necessary step towards an end, in this case, accessing services designed for elders. By connecting the journey to a service provider, the public sector and the Municipality of Puente Alto realized that there is a need to provide assistance with arriving to the activities offered. In this sense, the user journey map helps administrators to visualize the service gaps that make it more difficult or disincentive participation in activities designed for the elderly. At the same time, it provides a framework to orient the design of a comprehensive experience for users, in this case including their journey throughout the city.

Co-creation as a tool for effective citizen participation

The design and delivery of public services rarely involves users in the creation process. Institutions design services to address the problems of users identified by officers and through statistical data. Even so, this process generally does not involve the people affected by the problem (OECD, 2011). Increasingly, the public sector is promoting "citizen participation" in the development of certain programs and services; however, there is little guidance on how citizens should be involved and in most cases citizen participation is reduced to public consultation on a set of fixed alternatives previously defined by policy makers (LIP, 2017).

The design process of *RedActiva* requires the collaboration of different stakeholders and also involved the active participation of users not only in an early research stage, but also throughout the entire design process. Mobilization needs differ from one territory to another, so in order to implement a pertinent solution to Puente Alto's mobility structure, several workshops and focus groups were held to understand specific needs and ideas for the issues *RedActiva* should tackle during the pilot implementation of the system.

As a result of these conversations, local characteristics of mobilization such as the extended use of "colectivos" (a fixed route taxi service) in the county, were incorporated in the design. The elderly reported having trouble going back home from the city center in the afternoon since "colectivos" were usually full, making wait times very long. To avoid the uncertainty of this situation, many of them decided to go home earlier than they would have wished. After multiple conversations with the elderly and the "colectivo" association, a preferential stop for "colectivos" was added to the components of the *RedActiva* network in Puente Alto.

A co-creative approach was also present in the conversations held between the Municipality and the private sector. As noted above with the case of "colectivos," business owners in Puente Alto participated in workshops with municipal workers in order to contribute to users' mobility requests. Small businesses offered their restrooms for free to whomever carries their *BandaActiva*. They did not receive any direct or monetary benefit in return for this service; however, they did recognize that satisfying the needs of the elderly could position them well among this growing group of potential customers. The selection of the businesses that were contacted was made from previous conversations with the elderly about the places they frequent in downtown Puente Alto.

Through repeated prototyping and testing with future users, the *BandaActiva* was developed. Issues such as the name of the band were also modified through conversation and testing sessions held with the elderly. An initial proposal of the band was called "active bracelet," thinking it would give a clear definition of the way it was supposed to be used. During conversations with elder men, they reacted firmly against this name, declaring they would never use a bracelet; bracelets were for women, according to them. The apparent subtle difference between 'bracelet' and 'band' was something the design team would have probably missed if users were not actively participating in the design process, and could have had an important impact on the reception of the *BandaActiva*.

Citizen participation is widely valued and required among public services in Chile. However, no clear method to allow the participation of citizens has been established. Public services frequently complain about the lack of tools to carry out citizen participation processes in a productive way. Service Design can provide a methodological approach and practical tools to carry out a successful participation process where users are not merely consulted about fixed solutions but can actually play an active role in the definition of the service or policy.

Piloting as an opportunity for continuous redesign

Piloting has been an essential tool of research and management in order to pre-test a research instrument (Van Teijlingen and Hundley, 2001), finding and testing new solutions

to a particular problem (Kohl and Cooley, 2003) and/or to reduce risk and uncertainty during the implementation of a larger project or program (Turner, 2005).

Pilot studies, programme or projects are an answer for dealing with the inevitable uncertainty that exists in any innovation or redesign. Testing a tool, conceptual idea or framework is an adequate process to reduce failures and negative impacts in the implementation phase. A traditional pilot allows researchers to test a solution, evaluate the results and then implement and/or redesign it.

The design process involves several repetitions of basic or initial pilot solutions, offering even greater opportunities for user involvement than traditional pilot implementation currently offers. Beta solutions provide a context where certain aspects of the project could be redesigned during the pilot phase. As in the software industry, the Beta solution allows an early interaction with users where they are not only testers, but also active contributors in the improvement of the proposed solution (Neff and Stark, 2003).

In the case of *RedActiva*, the pilot project has been an opportunity to involve users in the design process. After the first month of implementation in Puente Alto, the indicators and users' interviews showed that some components were not working as expected. In a traditional pilot study, it would be necessary to end the pilot phase before solving the problems, but in this case, redesign is a permanent part of the process allowing researchers to fix problems as soon as they are detected.

The *RedActiva* pilot program has opened doors for opportunities to involve public organizations and other partners who traditionally do not work together, to collaborate from the very beginning of the project. In a traditional pilot, the role of the public organizations would be to authorize, monitor and/or analyze the results of a small-scale implementation. In this case, the Municipality and traffic authority (UOCT) are active participants of the pilot, contributing in the solving of problems that arise in the implementation. Pilots not only serve the purpose of trying out solutions with users, but also to test forms of collaboration amongst institutions and other stakeholders who are in charge of delivering the service.

Lessons learned from the case study

The *RedActiva* case is an example of how Service Design can contribute to identifying the gaps that make the co-production of public services by users more difficult. In the past, the Chilean public policy on ageing has been focused on offering a diverse array of initiatives to promote the autonomy and active life of the elderly, but most of these activities occur in places located several blocks or kilometres from their homes. Until now, Chilean public policy has not realized how important urban mobilisation is for the the elderly's autonomy and participation. Service Design tools, and in particular the user journey map, demonstrated the existing gap in this framework, showing how mobilisation difficulties affect the elderly's participation. Without addressing mobilisation, public policies will not be able to fully engage older adults in the wide range of activities designed for them. For these reasons, a Service Design approach is a useful tool for policy makers to develop a broader understanding of the interaction of a given service with its users, one that does not start at the first contact point but does extend to the way they get to and from the activity.

The Service Design approach may also contribute in engaging and coordinating different partners in addressing "wicked" problems. In the case of *RedActiva*, the urban mobilisation of the elderly could not have been addressed independently by each public organization. While the traffic authority could have dealt with traffic light crossing times, the transport authority with the cost of public transport, and the Municipality with the lack of toilets, none of these solutions would have had the same impact by themselves, as they do in a

coordinated network. A focus on the needs of users can help organizations and partners work together towards a common goal, allowing them to reach objectives that lie outside their usual area of competence. This can be extremely valuable for governmental policies that are usually designed and implemented in silos, with little communication between organizations. A user-centred approach, with tools like the user journey map, co-creation and piloting, can help develop fruitful conversations between public workers and organizations.

The *RedActiva* case also helps to illustrate the importance of piloting solutions at a small scale and cost. In the case of *RedActiva,* the simplicity of the idea and the low implementation cost were two important factors in engaging public partners. The proposed framework was capable of integrating the objectives and concerns of different public organizations, allowing each one to achieve their institutional goals as a member of a broader contribution. The pilot also contributed toward catching the attention of other important partners, like the Ministry of Transport and the National Service for the Elderly, who have recently expressed their interest to be part of the future development of *RedActiva*, as well as several other counties throughout the country that wish to implement the network in their territories.

Finally, an important challenge that arises from a new integrated approach to the problem of mobility in this case is the need of a new governance model. *RedActiva* requires a coordination entity that can articulate the roles and project contributions of each organization, as well as the interaction with users and the continuous improvement and redesign of the network. It is not possible for any of the public organizations participating in the initiative to assume the global coordination of *RedActiva*, because it exceeds their institutional responsibility and expertise. Instead, a Service Design approach brings together a broad spectrum of partners and implies an active involvement of users in the design process. However, it is yet to be seen what type of governance models will need to be put in place to assume the administration of the solutions developed under this work scheme, in order to secure the sustainability and scaling-up of initiatives like *RedActiva*.

RedActiva is an example of how a Service Design approach can facilitate the interaction between public policy and citizens. The five Service Design principles proposed by Stickdorn (2010)—user-centered co-creative, sequencing, evidencing and holistic—could transform the way public services are conceived and delivered, providing practical tools for the design process. As a result, public services can engage with their users on a deeper level, bridging the gap necessary for a successful co-production.

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