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Designing Public Services: The usefulness of three service design methods for identifying user experiences

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Abstract

This article examines the use of three service design methods in exploring complex public service systems. The methods used were the persona technique, mapping techniques in collaborative design workshops, and observations supplemented by group discussions. In their application to a university service, it was found that through their user-centred and collaborative approach, the service design methods assisted in the analysis of user experiences, including critical incidents, within the service system. It was also identified that user co-production formed the core of the service system and its processes, which highlights the need to actively involve users in public service design projects.

Key words

Service design, public service systems, public service-dominant logic, service mapping, co-production

DESIGNING PUBLIC SERVICES

The usefulness of three service design methods for identifying user experiences

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INTRODUCTION

Developments in the public services literature constantly distance themselves from a 'product-dominant logic' and explore new ways that place the user's experience at the heart of public service delivery (Osborne 2010a, 2010b; Osborne, Radnor, and Nasi 2013). This reframing of the public service delivery process is based on the study of service-dominant logic, which promotes a rethinking of the goods versus services perspective (Lovelock and Gummesson 2004). In service-dominant logic, as opposed to goods-dominant logic, tangible (goods) and intangible (services) are not suggested as alternative forms of products (Vargo and Lusch 2008a): rather, goods are suggested as appliances (tools, distribution mechanism) that serve as alternatives to direct service provision, while service represents the general case of the exchange process. This means that service as the common denominator is always exchanged, whereas goods, when employed, are seen as aids to the service-provision process (Vargo and Lusch 2008b).

A decision to integrate a service-dominant logic into public service delivery will mean that value will need to be understood as being co-created within complex service systems rather than being developed in closed production processes and delivered to service users (Gummesson and Polese 2009; Maglio and Spohrer 2013). For example, by taking a service-dominant approach, Osborne et al (2013, 143) proposed that '[b]y adopting a public service-dominant approach to public services delivery both the citizen and user are situated as essential stakeholders of the public policy and public service delivery processes and their engagement in these processes adds value to both'.

A growing demand to consider the users or consumers as value co-creators within public service systems has reinforced the importance of developing knowledge that can assist in analysing and designing such service systems. The conceptualization of consumers as active value co-creators raises new challenges for service design and innovation as new methods are required that enable the orchestration of clues, processes, and interactions to support consumers in co-creating their desired experiences (Teixeira et al. 2012). In this article, we contribute to the public service-dominant logic-based debate (e.g. Osborne 2010a; Osborne, Radnor, and Nasi 2013; Radnor et al. 2014) and the use of three possible service design approaches that define public services as complex service systems and focus on the service user as a central co-producer within these systems. These approaches were then applied to a university service to examine their usability for gathering information for public service systems design. The application used the following steps: (1) the use of personas as a new method for understanding the service user, (2) the application of visualization techniques in collaborative design workshops to make service systems manageable, and (3) the use of observational techniques for in-depth analysis of user experiences. The findings from the use of the service design methods are then discussed in terms of their learning and implications for public service systems design.

PUBLIC SERVICES FROM A SERVICE SYSTEMS PERSPECTIVE

Since the introduction of a service-dominant logic by Vargo and Lusch (2004), a new service perspective has evolved in the literature arguing that value is not embedded in goods and services and delivered to consumers but is co-created in use (Vargo and Lusch 2004, 2008b) or co-created in context (Vargo 2009). From this perspective, the term 'service' reflects the process of doing something beneficial for and in conjunction with some entity rather than units of output, as implied in the plural word 'services' (Vargo and Lusch 2008b). This means that as the beneficiary, a central part of value creation lies within the consumer sphere and can be co-created in conjunction with the organization during the service consumption process (Grönroos 2011).

The value co-creation view has important implications for public service organizations. First, a public service management perspective that is still underpinned by a manufacturing logic and defines service as one particular product category to be designed by the organization and delivered to citizens as passive recipients of value becomes deficient. Instead, organizations need to be defined as open systems in which the service provider interacts with the service user in value co-creation and all actors can act as resource integrators (Gummesson 2006a; Grönroos 2007).

Service systems are value-co-creation configurations of people, technologies, and additional resources that interact with other service systems to co-create value (Maglio and Spohrer 2008). Service systems have an internal and external structure in which system actors can co-create value directly or indirectly with other systems (Maglio and Spohrer 2008). Service systems, as such, go beyond an organization's boundaries and reflect that both the service provider and the service user can act as resource integrators and value creators (Maglio and Spohrer 2008, 2013).

Second, each instance of value co-creation changes the nature of the system to some degree, thus indicating that service systems are dynamic and complex value creating configurations (Wieland et al. 2012). For example, from an organizational perspective, a service offering can be provided through multiple interfaces that go beyond the physical store and are increasingly enabled through technology driven service innovations (Patricio et al. 2011). The service user then interacts with a concrete interface, which can be seen as a coherent set of service elements or clues that enables or supports consumers to co-create their service experiences (Teixeira et al. 2012). Similarly, public services can be seen to be complex service systems consisting of a series of often iterative interactions between a range of human, organizational, and technical elements and processes (Radnor et al. 2014).

Third, within service systems, interactions form the foundation for service provision because they enable the consumer to influence the organization's processes as a co-producer of resources and the organization can directly influence the consumer's value-creation process as a co-creator of value (Grönroos 2011). This standpoint is in line with Osborne et al. (2014) who proposed co-production as being at the heart of public

service delivery and as a source of both effective performance and innovation in public service. Interactions thereby permit organizations to extend their value facilitation efforts to directly support users in their value-creating processes (Grönroos 2008, 2011).

A definition of co-production as being at the heart of public service delivery means that interactions with users and citizens can be expanded beyond those of simple service provision. As shown in Figure 1, ongoing interactions with users should be used for relationship development because 'sustainable public service organizations are dependent on building long-term relationships across service systems rather than seeking short-term discrete and transactional value' (Osborne et al. 2014, 170). This perspective has been underlined within the relationship marketing literature, suggesting that ongoing interactions have the potential for relationship development between the firm and its customers (Grönroos 2009) and provide opportunities for different forms of co-creation (Halliday and Trott 2010).

Finally, and in addition to relationship development, opportunities for mutual learning and different forms of co-production that allow users to participate in collaborative innovation and design processes should be enabled and the organization should learn more about the users and their everyday activities. This standpoint is supported by the co-production concept as proposed by Osborne, Radnor, and Nasi (2013) and is depicted in the centre of Figure 1. Mutual learning and co-production can lead to a platform for open innovation and continuous service improvements that aim for increased efficiency for the respective organization as well as for the development of more desirable and useful solutions for the user in future interactions. What these implications mean for service design is described in the following section.

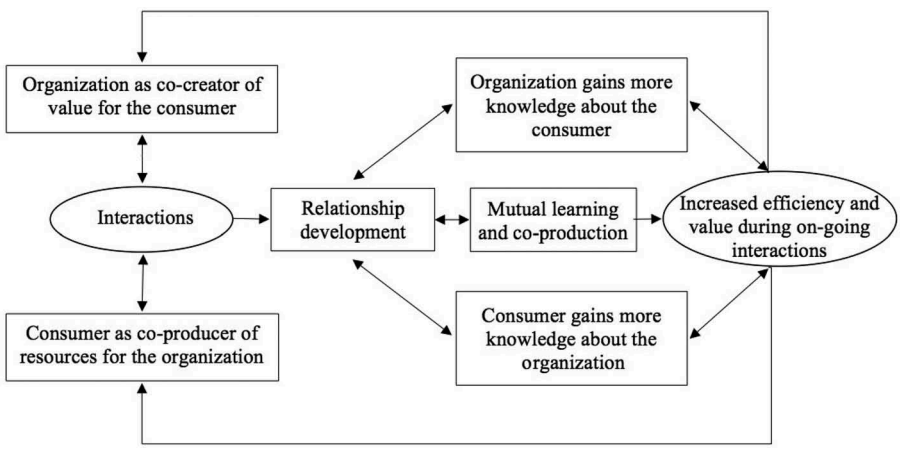

Figure 1: The co-production matrix

SERVICE DESIGN AS A SYSTEMS CHALLENGE

The introduction of service systems converted service design to a systems challenge driven by an understanding of human experience (Evenson 2008). In this context, Ostrom et al. (2010, 17) defined service design as 'the orchestration of clues, places, processes, and interactions that together create holistic service experiences for customers, clients, employees, business partners, or citizens'. This definition emphasizes two central aspects, namely a user-centred design and service systems aspect of service design. The orchestration of clues, places, processes, and interactions for holistic user experiences requires (1) a systems approach to account for the complexity of a service offering (Evenson 2008; Patricio, Fisk, and Falcao E Cunha 2008; Patricio et al. 2011), and (2) a user-centred approach to investigate and understand how consumers experience a service (Holmlid and Evenson 2008; Wetter-Edman et al. 2014).

From a design standpoint, it has been argued that users do not experience the complete system but merely a personal pathway through the system (Buchanan 2001). This means that even if users are integrated within a service system, only specific points of contact or 'touchpoints' rather than the whole system are experienced by them. These 'touchpoints' subsequently form a so-called customer journey that is experienced by the consumer through the service system (Voss and Mikkola 2007). Yet, an experience cannot be restricted to isolated service encounters but needs to be extended 'beyond the current context of service use to also include past and future experiences and service customers' broader lifeworld contexts' (Helkkula, Kelleher, and Pihlstrom 2012, 59). Hence, from the firm's perspective, the design and marketing of a service offering requires a profound understanding of the consumer's 'lived experience' within the broader lifeworld context.

Service design focuses on analysing the consumer's consumption experience and evaluating 'touchpoints' that occur during the continuously developing service experience (Ostrom et al. 2010; Kimbell 2011; Wetter-Edman et al. 2014). It recognizes that the main drivers of service system complexity are consumers who are active value creators or co-constructors of their own experiences (Prahalad and Ramaswamy 2004; Gummesson 2007a; Lusch, Vargo, and Wessels 2008). Thus, understanding the user's experience and identifying the 'touchpoints' within the service system that most significantly influence the experience have become central components of service design (Payne, Storbacka, and Frow 2008; Teixeira et al. 2012).

The challenge of managing the complexity of service systems led to the development of a number of service design methods and tools. For example, it has been suggested that because experiences are subjective and elusive phenomena, mapping techniques and observational and ethnographic methods can be used to gain a deeper understanding of user experiences (e.g. Parker and Heapy 2006; Holmlid and Evenson 2008; Meroni and Sangiorgi 2011). Such techniques have been said to also capture the dynamism of

processes, the ongoing interactions, and the emotional aspects during the service experience (Prahalad and Ramaswamy 2004; Zomerdijk and Voss 2010).

In addition, the requirement to understand the user's experience within a broader context led to the exploration of forms of co-production that define service users as a driving force for service design and innovation. For example, co-design has become an increasingly recognized concept in the service design field (e.g. Meroni and Sangiorgi 2011; Steen, Manschot, and De Koning 2011; Wetter-Edman et al. 2014). Co-design has been described as a specific form of co-creation in which designers and participants not trained in design are working together throughout the whole span of a design process with the aim of achieving collective creativity (Sanders and Stappers 2008). Arguably involving end-users and other stakeholders in the entire design process is an important driver of public sector innovation as it can effectively address key societal challenges (Bason 2010).

Although recent developments within the public policy literature have begun to integrate such co-production perspectives (e.g. Parker and Parker 2007; Eggers and Kumar Singh 2009; Bason 2010), service innovation and design is still largely seen as the responsibility of specific innovation departments in which public services are designed and provided to citizens, who, in turn, only demand, consume, and evaluate them (see Pestoff 2006; Osborne, Radnor, and Nasi 2013; for a critique). Such silo structures accompanied by closed and top-down processes have been frequently described as innovation barriers as they hinder collaboration with external sources such as employees, citizens, and other public and private partners (Eggers and Kumar Singh 2009; Bason 2010; Sorensen and Torfing 2011).

In the current study, we build on recent developments in the service design literature and examine three service design methods that define public services as complex service systems and focus on investigating the user experience beyond the context of service use. We apply the three different service design methods to a university service to examine its usability for public service systems design. The research method, study setting, and service design methods that were used in this research are detailed in the following section.

RESEARCH METHOD AND STUDY SETTING

Our research examines the use of three service design methods to obtain information to be used to develop public service system designs, especially in terms of their effectiveness in (1) managing the complexity of service systems as well as (2) understanding user experiences, including the identification of critical incidents within the customer journey (e.g. Bitner, Booms, and Tetreault 1990; Edvardsson and Roos 2001),[1] defined as 'specific interactions between customers and service firm employees that are especially satisfying or especially dissatisfying' (Bitner, Booms, and Tetreault 1990, 73). We apply a combination of the following three service design techniques that have been found to be typically used in service

design projects (Kimbell and Seidel 2008; Diana, Pacenti, and Tassi 2009; Segelström 2009; Stickdorn and Schneider 2010; Zomerdijk and Voss 2010):

(a) **Persona technique:** A persona is a fictitious user profile of a specific target group, including a detailed description of interests and behaviours that are typical and relevant (Lidwell, Holden, and Butler 2010). This technique is increasingly recognized, especially in user-centred design, because it offers insight regarding users' attitudes, preferences, and interests (Holmlid and Evenson 2008; Bason 2010).

(b) **Visualization and mapping techniques:** Visualization and mapping techniques can transform systems and processes into visible dimensions and, as such, create clarity about what elements within the service system have contributed to the experience (Segelström 2009; Patricio et al. 2011). The most common visualization techniques used in service design include customer journey mapping and blueprinting (Zomerdijk and Voss 2010). Yet, customer journey mapping was claimed to be more appropriate as this technique can be useful for capturing the 'touchpoints' within the service system and for understanding the user's experience across the customer journey (Zomerdijk and Voss 2010). As part of the visualization and mapping technique, collaborative design workshops were used to allow participants to share their experiences and contribute to the development of new ideas (Bason 2010; Steen, Manschot, and De Koning 2011). The active involvement of consumers in analysis and design processes has been claimed to be essential to fully integrate the users' experience (Sanders and Stappers 2008; Ostrom et al. 2010) and hence to gain an insight into that experience.

(c) **Observational techniques:** Observational techniques aim to observe a person or a physical place over time by becoming part of the context of the observed (Bason 2010). Observational techniques enable the designer to 'walk in the customer's shoes' and, as such, can provide a clear picture of how a service is experienced by the user (Holmlid and Evenson 2008).

A directed observational study using workshops and supplemented by interviews and in-group discussions was deemed to be the appropriate research method to use because such an 'interactive research' approach provides the researcher with an input of real world data from which concepts can be formed and propositions and theory can be probed (Gummesson 2001, 2007b). It, further, takes a systemic, holistic stance as it does not assume away complexity, chaos, ambiguity, fuzziness, uncertainty, and dynamic forces for the convenience of the researcher and his or her analysis (Gummesson 2006b). Complexity and uncertainty played a major role in this research because the user experiences drew upon numerous interactions between the users and the service providers (Sparks 2001). Hence, using an

observational research approach as proposed by Gummesson (2006b) helped with the understanding of particular situations, solving of practical problems, and generation of new knowledge and understanding of the methods used.

Ostrom, Bitner, and Burkhard (2011) have emphasized the importance of developing new tools and techniques that permit the redesign of education service systems in such a way that students become value co-creators within the system. The situations that were therefore used for observation in this research were the services as experienced by international students in their relocation to three university campuses in Australia. The focus on university services was relevant and contemporary, as in the current education and service literature, there is much discussion about the need to transform higher education by taking a service lens and defining the student as being a value co-creator at the core of the higher education service system (e.g. Finney and Finney 2010; Ostrom, Bitner, and Burkhard 2011; Wong 2012). The reasons for this are a number of challenges, including low student retention and graduation rates, the increasing cost of higher education, and concerns that graduates do not match the required skills to compete successfully in today's interconnected, global marketplace (Sultan and Wong 2010; Vauterin, Linnanen, and Marttila 2011).

In the research reported in this article, the focus was on gaining information for service systems that would support international students from China in their relocation to regional university campuses in Australia. This focus has been supported by Radnor et al. (2014) who suggested that the early stages of the student lifecycle could be essential in shaping the students' experience. Further, the student sample was narrowed down by using the following criteria: (1) students had to be exchange students from their home universities in China, (2) they had to be studying in their first semester in Australia, and (3) they had to have been enrolled in an undergraduate business degree and to be studying on-campus. These criteria were used for all three observed situations because internal performance reviews had indicated that this specific student cohort had faced challenges in adjusting to an Australian study system, leading to high failure rates within the first semester.

The selected study settings were deemed ideal for the application of service design methods because of their complexity and the necessity to understand user experiences. The services required a design approach that aimed at understanding students' experiences, including the identification of critical incidents during their 'customer journey'. In addition, an approach was needed that would account for the complexity of service systems because the service was delivered by a number of organization-internal departments and processes, including the international office, the English school, the respective faculty responsible for delivering the courses, and a number of support services provided to students during their studies. The outcomes from the application of the three chosen service design methods of use of personas, system mapping, and observational analysis are set out in the following sections.

UNDERSTANDING THE USER THROUGH THE USE OF PERSONAS

Personas were developed from in-depth interviews with nine students who had been randomly selected from three university campuses. The focus of the interviews was on identifying perceived differences in teaching and learning and student life that might influence the experiences of student life at Australian universities. The differences that were identified are listed in Table 1 and resulted from the clustering of the selected data into relevant themes (Miles and Huberman 1994).

The insights derived from the in-depth interviews provided an understanding of the background of the service user from a broader world life-experience perspective. The insights that were derived from the interviews were related to the specific service system to be analysed. In addition, however, broader aspects of the service context were also captured, including perceived differences and past experiences with student life and teaching and learning methods.

MAPPING THE SERVICE SYSTEM

Having developed a detailed background understanding of the service user, the service system including the customer journey within it could now be mapped and analysed. The customer journey maps, as developed in this research, evolved from a two-step process. First, the university-internal service delivery systems were mapped in collaboration with the directors of the English schools, a staff member from each of the three international offices, and two lecturers from the business faculty. All participants had visited the respective Chinese partner universities at least once and could therefore provide insights into the students' process of accommodation to an Australian environment. An example of such a collaboratively developed service map is displayed in Figure 2.

The service map allowed for the visualization of the university-internal service delivery system, including the different services that were provided to students during their transition journey and the commencement of their studies. During the collaborative mapping exercise, participants noted that the different services were provided by separate departments. Although there was agreement that the aim should be to '… support students in their new experience', it was identified that no collaboration and '… a lack of communication' towards achieving this aim existed between the departments. The respective departments were thus defined as separate service delivery systems, despite the recognition that they should be interrelated because the user (i.e. the student) was the same across the entire process.

After the mapping of the university-internal service delivery system, a second step that was used was a workshop that was conducted at each campus with between four and six students as participants. During these workshops, the students' experiences in Australia were discussed and collaboratively mapped as a customer journey as part of

Table 1: Students' perceptions of differences in student life and teaching and learning

Student life in China	*Student life in Australia*
Students live and study in metropolises and large cities. For example: 'My hometown is the sixth largest city in China … [with a population of] over 10 million people'.	Students live and study in rural towns with populations of up to 50,000 inhabitants. This change led to a perceived lack of recreational activities and infrastructure for example '… there is not much to do' and '… it is difficult to get around without a car'.
Students live in a community that values high levels of collectivism and strong social networks. For example: 'Socializing is very important in my country … for a Chinese [person] one cannot do without the others'.	Student re-locates into a community that is characterized by a high level of individualism. This led to difficulties in engaging with the local society. For example: 'It is my first time away from my family … it was difficult to find new friends, which is a big challenge for me … but I am ok now as I settled down for a while'.
Students are strongly engaged with the campus community and participate in on-campus activities. For example, students stated that they '… liked the university atmosphere' as there were '… many things to do' such as 'sports' and 'celebrations'.	Students perceive a limited availability of suitable on-campus activities and a lack of engagement: For example 'I'm not at university very often … I only have class on three days [a week] … and sometimes I go to the library to study.' Another student stated that: 'It's very quiet on campus … not many students come here'.
Teaching and learning in China	*Teaching and learning in Australia*
Students are enrolled in 810 units per semester and spend 25–30 hours per week face-to-face time with lecturers. For example: 'In China I have [a] class every day but here [in Australia] I only have four [90 minutes] classes every week'.	Student is enrolled in 34 units per semester and spends 5–15 hours per week face-to-face time with lecturers, which is perceived as a large difference. For example: 'I only have two classes on Tuesday and one class on Thursday … this is very different from my study in China'.
Teaching content is taught in a bilingual manner. For example: 'The Powerpoint slides are often in English but the teachers speak in Chinese'. One student additionally reflected that '… lectures (sic) do not speak fluent enough (sic) to do presentations in English'.	English is used as the teaching language. The student cannot follow parts of the content, particularly when the lecturer speaks rapidly or not clearly. For example: 'I can understand well but the Australian teachers speak very fast and I often cannot understand important content'.
Most teaching and learning occurs on-campus. For example: 'At my university [in China] we always study for the exams together … we can help each other when we have problems'.	Increasing use of online teaching modes – most of learning occurs off-campus. As a student stated:'I don't need to be on campus very often because I have only online lectures…'.

(*continued*)

Table 1: (*Continued*)

Teaching and learning in China	*Teaching and learning in Australia*
The student perceives his/her position as a passive listener in class. For example: 'The Australian teachers always ask questions during class. In China, we are not used to ask many questions … I try my best to give good answers'.	The student is asked to engage in active discussions and to contribute to class interactions. Students, however, prefer one-to-one interactions with the lecturer to avoid potential 'loss of face'. For example: 'Sometimes I need ask questions after class as I cannot catch up what (sic) the teacher said during class'.
Learning is monitored, directed, and managed by the lecturer and driven by memorizing the information that has been taught. This also includes extra curricula meetings. For example: 'We often meet with the teacher and talk about all the things we need to be good at [in] his class'.	The student is required to self-manage his/her time and to learn by questioning and critical analysis. The student is not used to develop assignments individually. For example: '… the way of study is very different. Although it is a little bit hard, I will try my best to catch up'.
Written and oral exams are the typical assessment types used. For example: 'At my university in China we don't need to write a report or assignment with references … we have to write many exams at the end of the semester'.	There is a requirement to address assignments and research projects requiring reports and essays. The student has limited prior knowledge of academic writing. A student reflected this as follows: 'The other hard thing for me is the professional structure to write an essay, report, case study, and the reference list. The reason why it is hard is the lack of training. Honestly, (sic) we do not need to write a report or assignment with references'.

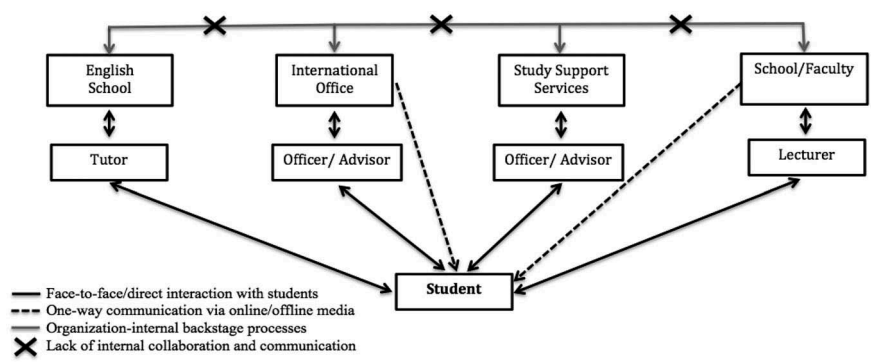

Figure 2: Example of university-internal service delivery system

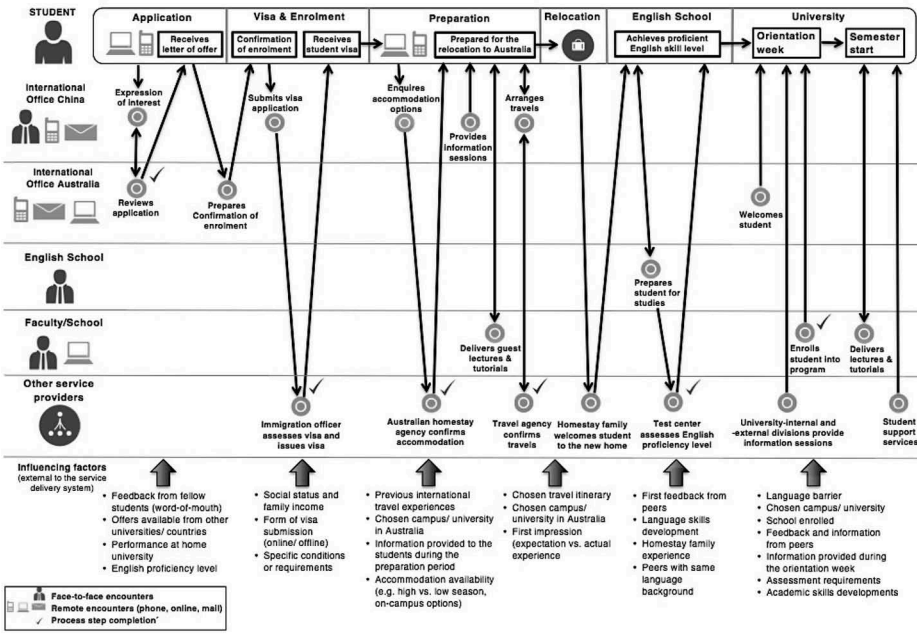

Figure 3: Example of collaboratively developed customer journey map

the service system from a user point of view. After the completion of the mapping exercise, students were asked to indicate particularly positive and negative 'touchpoints' they had experienced, as well as to highlight the 'touchpoints' within the service map that had impacted most significantly on their experience. As a result of these workshops, customer journey maps, as shown by the example in Figure 3, were developed.

A customer journey map produced a visual picture of how students had experienced their transition to learning at an Australian university. It comprised all of the 'touchpoints' that the students had noted during their transition experience, including factors that were not directly related to the university-internal service delivery system but also from a broader service system perspective. The mapping exercise, additionally, allowed for the identification of critical incidents within the service system:

(a) During the mapping exercise, students identified that until their arrival in Australia, their main direct contact point was the international office from their home university. The international office assisted students throughout the application and preparation process, including '… dealing with the application and visa documents', introducing students to '…some basic rules and information about the campus' and '… the life in Australia'. Students also pointed out that the international office '… did not provide information about the courses that I will learn until I arrived in Australia (sic)'.

(b) An important 'touchpoint' during the preparation process was identified as the guest lectures and tutorials that were conducted by Australian lecturers at the Chinese partner institutions. These were conducted during a two-day visit and included a total of one two-hour lecture and two 90-minutes tutorials. Students indicated that during these sessions, lecturers provided them with '… a lot of information' about their upcoming studies in Australia and also presented information '… about references, plagiarism, essays and reports'. Yet, students indicated that they remained 'unsure' about the 'teaching and assessment methods', and the Australian 'university experience' as it was '… too different'.

(c) Although students spent up to a 10-week programme at an English language school prior to the commencement of the semester, they indicated that they were not exposed to any services or information regarding their future studies at the respective university. The students perceived their studies at the English school as a '… good experience' as, for example, the staff members and lecturers '… helped us to face the challenges and practice our English'. The semester start at university, on the contrary, was described as 'very different' and as 'tough' and a 'big challenge' because of the '… different way of study' and the inability to '… understand important content in class'. As shown in the customer journey map, during their study at the English school, the students had no areas of interaction with the university. Their first university contact was at the commencement of the university orientation week.

(d) Students suggested that the weeklong orientation programme, which typically takes place in the week before the semester commences, was the most important 'touchpoint' during their relocation journey. For example, students indicated that they '… learned a lot about the university and how to study' and that the requirements are '… very different from my university in China'. The orientation week programme included a number of information sessions to make students aware of specific rules and requirements when studying and living in Australia. Furthermore, students were introduced to a range of university services that were available to them during their studies and were enrolled for their studies. The orientation programme was therefore seen to be an important entrée to the students' preparation for studying in Australia.

(e) Yet, the students perceived the orientation week as a particularly negative 'touchpoint' as the programme did not successfully prepare them for their studies. One student reflected that: 'Life is tough at the beginning of the semester as the orientation is too short.' Another student added: 'It is my first semester here [in Australia] and the first time to receive western education … I'm quite confused about the study and the assignments'. Thus, students were particularly concerned that they were 'not prepared' for their studies in Australia.

The collaborative mapping exercises provided details of the users' experiences from a broader service systems perspective. The service maps assisted in the analysis of how the service was facilitated by the relevant service provider and experienced by the service users. It, further, allowed for the identification of influencing factors that were external to the immediate service provision by the university. Moreover, the service maps provided a basis for group discussions that were used to identify potential points of failure or other critical incidents within the service system. In this research, the orientation week programme was identified as a critical incident as it was identified as being important for preparing the students for their study in Australia.

'TOUCHPOINT' ANALYSIS THROUGH OBSERVATIONS

With the orientation week programme identified as an important but at the same time a negatively perceived 'touchpoint', observational techniques were used to analyse this 'touchpoint' in more depth. The observations focused on the information sessions that were provided to students over a two-day period during the orientation week of the subsequent semester. Field notes were taken in regard to what services were delivered and how the students might have perceived the service.

The results of the observations indicated that the orientation week was set up as an intensive week of information input that was delivered by representatives of different university internal and external departments. Yet, the findings from the observations turned out to be insufficient to provide a clear understanding of the user experience, their expressions, and their body language as well to successfully interpret the reactions and emotions experienced during the service consumption. Thus, to avoid misinterpretations, the field notes were additionally discussed with students immediately after the observed sessions. The results of the observed information sessions that were provided to students during the orientation week are summarized in Figure 4.

The figure details the specific contents delivered to students, as well as the perception of the information by students. A timeline is also provided that indicates the duration of the individual sessions. The university departments that were responsible for the session delivery are listed at the bottom of the figure, whereby the label 'External' indicates that the respective information session was delivered by a university-external institution. In addition, the following three overall aspects were found to have a negative influence on the students' experience:

(a) Students described the information sessions as 'tough' and 'confusing' because most presentations '… included too much information' (e.g. Student support services session, Day 1) and requires them '… remember many tasks' (e.g. application forms, general information session, Day 1). In addition, some relevant sessions were delivered within very short timeframes, which might have added to

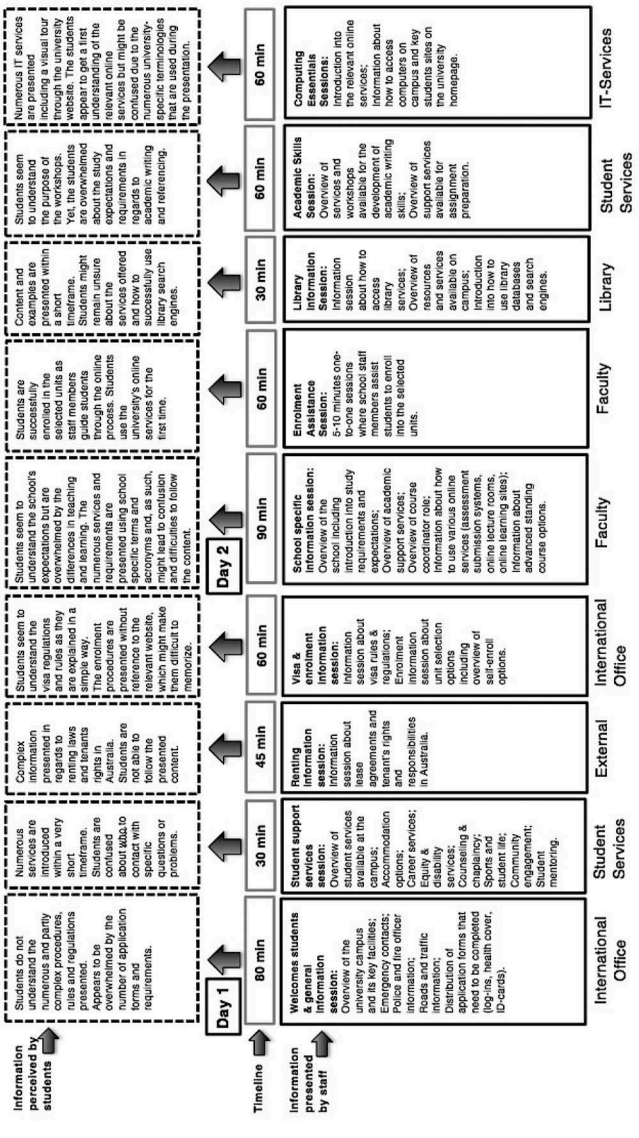

Figure 4: Results of the observed information sessions

the difficulties for the students to be able to condense the relevant information that was provided.

(b) During the delivery of the information sessions, sector-specific terminologies such as 'Blackboard', 'Turnitin', 'Calloaborate Live', 'Majors', 'Electives' or acronyms such as 'UIG' and 'ASDU' were used (e.g. School-specific information session, Day 2). Students stated that the presenters '… speak very fast' and that it was '… difficult to understand important information'. The use of such jargon might also have confused students as they were not familiar with the terminologies.

(c) The sessions were scheduled without recognizing that information in some sessions built upon information that was provided at a later stage. For example, the 'computer essential session' (last session, Day 2) was scheduled as the last session of the orientation week but included information that had been taken for granted in preceding sessions. This poor scheduling would have compounded any perceived confusion.

DISCUSSION AND IMPLICATIONS

According to Radnor et al. (2014, 404), 'the co-production of public services … is an inalienable element of such services.' This is a reinforcement of an earlier statement that 'the production of a service, as contrasted to a good, was difficult without the active participation of those supposedly receiving the service.' (Ostrom 1996, 1079). The findings of the current study support the argument that the user as a co-producer formed the core of the investigated service system. It, as such, adds to the current debate in public management theory (e.g. Osborne and Strokosch 2013; Osborne et al. 2014; Radnor et al. 2014) that defines co-production as a central element of the service delivery system and its processes.

Further, as shown in Figure 1, co-production should not only be seen as limited to the analysis and improvement of existing services but seen as a driving force for service design and innovation through systematic user involvement. In public management, the involvement of users has become widespread to the extent that the OECD (2001, 11) has stated that strengthening the involvement of citizens in policy-making is 'a core element of good governance.' This concept has been supported by Martin (2003, 193–4) saying that: 'Many services therefore benefit from the active involvement of users in design and production. This can help to increase the chances that services meet users' needs.' These comments serve to highlight the broad need to examine service design approaches that place the service users and their experiences at the core of the service process and to establish their applicability and their limitations, as suggested by Osborne, Radnor, and Nasi (2013).

This research has addressed the need for the testing of approaches to be used to gain inputs from users by examining the use of three different but complementary service design methods to study the experiences of Chinese students who were commencing their studies in Australia. These methods were (1) the use of personas as an alternative

method for target group analysis, (2) the collaborative mapping of the service system to connect the delivery system with the service user and to identify critical incidents within the customer journey, and (3) the use of observational techniques for the in-depth analysis of specific 'touchpoints'. From the results of this research, the following conclusions can be drawn in regard to using these service design methods to explore user experiences in a public service environment.

Previous research has suggested that personas can capture and communicate different customer categories and can be used to drive different service design scenarios (Holmlid and Evenson 2008). In this research, the development of the personas was based on in-depth interviews and focused on exploring specific behaviours and routines that were related to the service to be analysed. Through the insights derived from the in-depth interviews, it was possible to identify the consumer's lived experience, in a broader lifeworld context. The use of the persona technique focused on the users and their experiences as it provided insights into the lived experience that were not restricted to isolated service encounters. Thus, its use had shown it to be a suitable tool to be used to identify themes that were relevant for a target group in a public sector environment and to expand on the information that could have been obtained by simple observational methods.

In workshops, the service system and the 'touchpoints' that users had noted during their customer journey were mapped both for service providers and for service users. The outputs from this visualization technique were then used as a basis for group discussions and analyses during these workshops. The choice of the techniques was suggested by other studies that have indicated that visualization techniques can be useful for gaining a deeper understanding of user experiences (e.g. Parker and Heapy 2006; Zomerdijk and Voss 2010) and can act as an important communication tool to transform ideas and complex processes into visible dimensions (Segelström 2009). In this research, the collaborative mapping exercises were indeed found to provide an opportunity to analyse how the service system was facilitated by the relevant service provider and how it was experienced by the user. In addition, the mapping exercises allowed the active involvement of relevant user groups and, as such, did lead to an enhanced understanding of the user's central role in co-producing the service process and the user experience of it.

Using the information derived from the preceding steps, an observer also analysed individual 'touchpoints' from a user's perspective. As suggested by Holmlid and Evenson (2008, 343), observational techniques can be used to 'walk in the customer's shoes' and 'to understand and experience the customer journey just the way a user would'. However, in this research, observations were not able to clarify why the users perceived certain 'touchpoints' negatively. From the observations, it was also not possible to capture the underlying factors that had led to a specific perception of the service. To enable this to occur, additional insights were required from users as a follow up to the observations. Thus, the use of in-depth interviews is recommended as an addition to the analysis of 'touchpoints'.

The service maps as developed in this research showed that the respondents experienced services as ongoing processes rather than as individual service encounters. This observation emphasized the need for a systems approach to service design as proposed by Osborne et al. (2014) and Maglio and Spohrer (2013) and implied that universities need to adopt a relational rather than a transactional perspective as students will use multiple services during their programmes of study. Since educational services are complex service systems designed to support students in co-creating their desired experiences (e.g. Spohrer and Maglio 2010; Ostrom, Bitner, and Burkhard 2011), ongoing interactions can not only be used for the development of long-term relationships, but can also be used to take advantage of co-production opportunities, particularly in regard to ongoing service improvement and innovation.

CONCLUSION

This research has examined a number of methods of obtaining user information and input, and these methods have been found to be complementary. It is therefore suggested that the application of a combination of the use of persona developments with in-depth interviews, mapping techniques in collaborative workshops, and 'touchpoint' analysis through observational techniques and together with in-depth interviews will allow for the gaining of a clear view of all user experiences and will assist in the design of complex public service systems.

Personas were observed to provide a background understanding of the service user from a broader lifeworld context, and collaborative mapping exercises were found to assist in the analysis of the public service system as facilitated by the service provider and experienced by the service user. However, the application of observational techniques did not provide a clear understanding of the users' lived experience and required additional insights from service users to be provided to permit an analysis of individual 'touchpoints' from the user's perspective. The three service design methods examined in this research and as extended with the addition of in-depth interviews allowed for the analysis of user experiences from a broader lifeworld context and the taking into account of the complexity of a public service system.

The implications of this research for service reform and policy development is that there is a need for policy developers and service designers to use a multiplicity of information gathering methods, such as those covered in this research, as a process for developing full knowledge of user experiences. In addition, the findings of this research showed that co-production was at the heart of the service system, which underlined the necessity to develop an orientation towards the systematic involvement of users in the design of public services. This study highlights the need to examine methods of involving users in service design and to test the applicability of such different methods.

By so doing, service designers will be able to design public service systems that better support consumers to co-create their desired service experiences.

LIMITATIONS

This research was conducted within a university environment and used a cohort of students of a specific nationality for its investigations. Radnor et al. (2014, 408) have suggested that, on a continuum of the level of service involvement in public service systems, education represents an area of high involvement where there is 'direct face-to-face contact between the service user and the service provider'. The educational environment was therefore a good one in which to carry out this research. However, in view of this continuum, the insights gained from this research into the role of these methods in gathering information cannot be generalized. They will vary in accordance with the needs of a particular branch of the public service. The effectiveness of the system design tools used in this research therefore needs to be further tested in different public service sector contexts.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

NOTE

1 The use of the critical incident technique to analyse service interactions has been espoused by a number of writers.

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