

Service Redesign: Bridging the Gap Between Service Provider and Its User

Case of Recycling Service Redesign in Edinburgh

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ABSTRACT

This paper discusses the gap between service provider and its user in terms of public service system. We argue that the gap is not only caused by design elements but by decision-making unfairness. Considered as an iterative improvement of current service, redesign is implemented in this paper to define and bridge the gap. Through service design and redesign methodology, participatory decision-making is proposed as an effective approach to bridge the gap.

Author Keywords

Service design; redesign; gap; participatory.

ACM Classification Keywords

Design

INTRODUCTION

Service design is an approach about carefully organizing tangible and intangible elements such as people, infrastructure and communication to build strong emotional connection between service provider and its user [8]. It is being used both in commercial and public organizations to meet user demands. In recent years, some documents from the British government first proposed the possibilities of service design for the public sector [9], which was then researched, picked up, and promoted in other European countries. Service organizations have been long recognized as an important element of the user experience for user satisfaction and loyalty [13]. In the public service scenario, service design has been pointed out as an approach that is less about competition and contestability but more about reducing the gap between what organizations do and what users expect or need [6]. Drawing on over 50 interviews with service innovators from the public, private and voluntary sectors, Parker, Sophia, and Joe Heapy argue that the common challenge that all service organizations face is how to create more responsive relationships with their users and customers [6]. However, many sets of current public service are not running smoothly mainly because they emerged initially from opportunities of service provider itself without taking its user into consideration [7]. In other words, there exists a gap between user provider and its user in terms of public service. As a matter of making iterative improvement to a current design [4], redesign provides a possible process for improving current situation. Therefore, service redesign

was implemented as a proper design process to improve the current service system and bridge the gap between service provider and its user.

Fly-tipping, the illegal deposit of any kind of waste onto any unauthorized land [2], is sever in some areas of Edinburgh according to the City of Edinburgh Council (CEC). Two hackathons are conducted to achieve the main goal of improving the current environmental conditions through design nudge. For the fast hackathon, through field trips to Leith Walk and Darly where CEC emphasized focus for fly-tipping, as well as data gathered from CEC website, the current service system was understood and the gap was defined. During the slow hackathon, a new service concept was proposed, prototyped, tested, and then optimized based on the gap redefined.

Three research questions are investigated as well as three hypothesizes are proposed and verified in this paper.

Research questions:

1. What are the theoretical and methodological elements of service design and redesign that can be integrated to contribute to service redesign?
2. What are the issues of current service system that cause the gap in a sense?
3. How can service redesign help to bridge the gap and contribute to public service system?

Hypothesizes:

1. The gap between provider and user is caused by physical factors that are designed imperfectly.
2. It is unfair decision-making that causes the gap in public service arena.
3. Getting user involved in design decision-making process is an effective approach to bridging the gap.

DESIGN APPROACH

Traditionally, service design uses the Double Diamond design approach to clarify various stages in the process [7]. In the meantime, the process of redesign is often a matter of incremental. Therefore, we learnt from British Design Council's Double Diamond approach [1] and revamp it as an

iteration circle to suit redesign process better (see figure 1). In the ‘discover’ phase, through field trips, observation and research, the existing recycling service in Edinburgh was understood. According to data visualization and gathered insights, the gap was first defined as poor design elements. Based on case study we proposed a new conception service trying to narrow the gap. The first prototype was made and tested. Through comparing current service and proposed one, insights were gathered and the gap was redefined. Based on following interviews, new system was proposed as well as new models were made, which was then tested again via online vote.

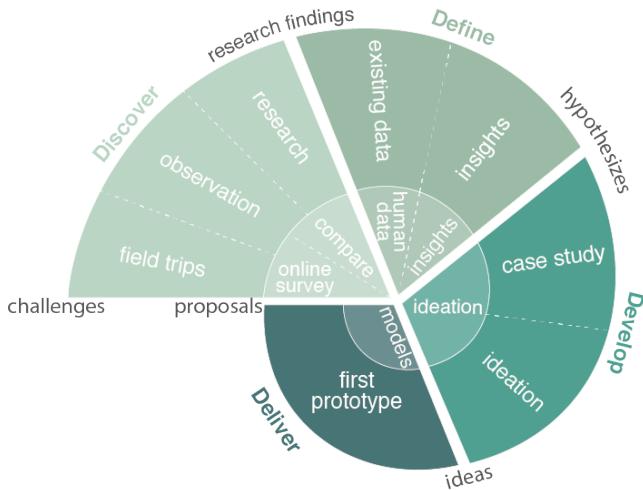


Figure 1. Double diamond circle

Test methods

Virtual tests rather than physical tests were conducted due to the lack of user resource in this paper. Instead of making a physical house and implementing it in the community which is time and money consuming, plastic prototype and models were made and published online to collect user’s opinion. Social media such as Twitter with a large population provides an ideal platform for user to get involved in the design process and decision-making.

Comparison

One important factor of redesign process is the evaluation of the differences between the model provided at the start, and the newly designed model at completion [4]. Therefore, comparisons and evaluations exist in all design process in this paper. Contradistinction of current system and initial prototype contributed to defining the gap between CEC and citizens, as well as the second hypothesis was verified by comparing the new service system and initial prototype.

DEFINE THE GAP

Understand the current situation

Based on field trips and CEC website, we understood the current recycling system which includes three parts: communal bins, community recycling center (CRC) [5], and big item collection service (see figure 2). Generally speaking, most of the waste goes into communal bins on the street due

to its convenience. Usually less than once a month, citizens drive their recyclable and big items to one of the three recycling centers outside the Edinburgh city center. The collection service provided by CEC offers another way to deal with big items with a cost of at least twenty-six pounds.

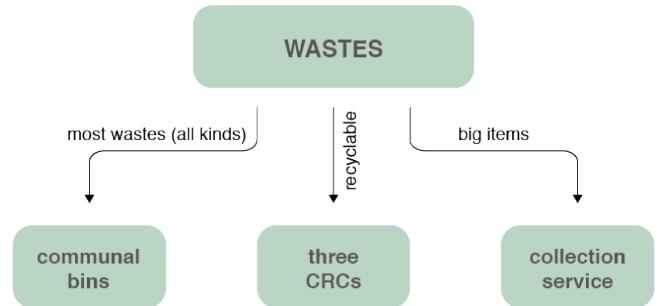


Figure 2. Current service system

Communal bins

There are eight areas that CEC wanted to emphasize the severity of fly-tipping in the city of Edinburgh. We carried field trips to three of those eight areas in Leith Walk and Darly district, finding there are tons of communal bins on the street as well as several wastes and big furniture right around the bins (see figure 3). It seems that CEC are trying to reduce fly-tipping by increasing the quantity of communal bins. However, the quality of waste bins is awaiting to improve according to our observation and interview with local people. The lack of uniformity of classification system as well as ambiguous signs makes it difficult for user to classify waste. Citizens are unsatisfied with the untidy street whereas the bins are easily got full without timely collection. Hence, compromising on quantity over quality cannot meet user demands of living in a clean and tidy community.



Figure 3. Communal bins

CRC

There are three CRCs outside the center of Edinburgh (see figure 4) which means more space but less accessibility. Field trip was carried to one of them, followed by insights about the CRC. Compared with communal bins, the classification signs are bigger and clearer to recognize. The relatively larger space of each type of recycling items makes it uneasy to get full in a short time. Nevertheless, there is a clear gap between service provider CEC and its user citizens, which is CRC is more convenient for CEC to manage than the communal bins whereas more inconvenient for user to get access to CRC because of their locations.



Figure 4. CRC locations

Collection Service

For big recyclable items such as furniture, citizens are provided with an option to request a collection [5]. The requesting process for citizens is first filling a chart online, then making an appointment of collection through phone call, and putting the booked items at the curbside before 7am of the collection day. Through this process CEC can finish collection within 2 steps, while citizens need more steps to get their items collected along with paying extra fees for the service. The unequal benefits for service provider and user will easily cause fly-tipping due to using the service in less frequency.

Define the gap: hypothesis 1

The gap between CEC and citizens exists in all three parts of current service. With same final target of building cleaner communities, their needs and demands in the process varies due to different benefit pursuing behind. What CEC wants is efficient management of the whole recycling service, while citizens want less steps to finish the task of recycling. In current situation, the benefit scale is inclined to CEC as a result of physical issues such as unclear signs and far distance which adds to extra tasks for residents to finish. Hence, hypothesis 1 was put forward that the gap between CEC and citizens was caused by imperfect functional design elements including full bins, ambiguous classification signs, far distance and extra fees.

Narrow the gap

Based on case study of Japanese waste management system [3] and data visualization of communal bin map of

Edinburgh (see figure 5), we found that centralizing the bins in a smaller area seems a practical way to narrow the gap between service provider and its user in a sense.

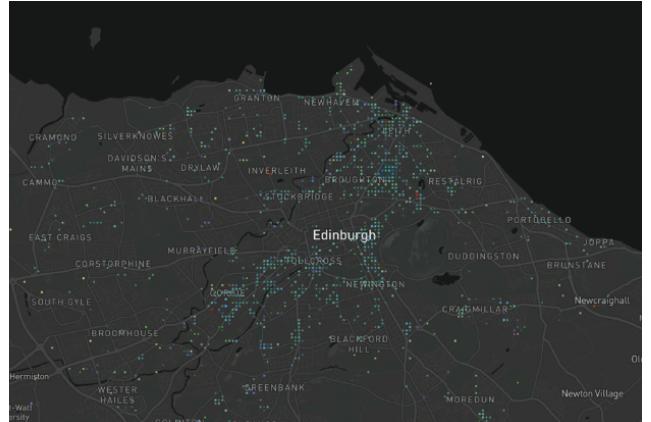
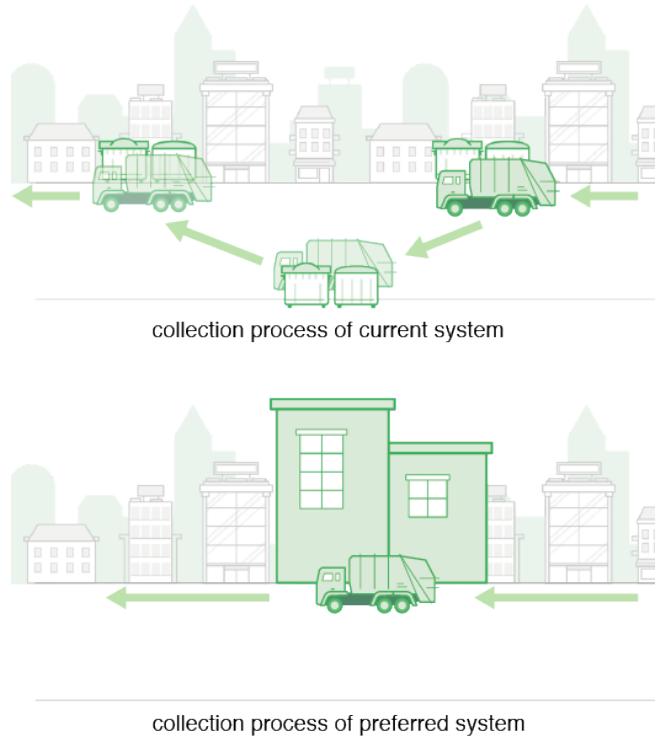


Figure 5. Communal bin map

In the view of CEC, centralizing means easier to manage, collect and clean within a smaller area (see figure 6), which will at the same time satisfy citizens' demands of enough space inside bins and closer distance between recycling centers and communities. We designed a set of new classification signs which is easier to recognize and user-friendly. With extra space, user can throw their big items onto exact area near their house instead of paying extra money for collection service. First prototype was then developed with acrylic and paper, centralizing communal bins into a waste house in Leith (see figure 7).



collection process of preferred system

Figure 6. Comparison of collection process



Figure 7. Signs redesign and initial prototype

First round test

As we did not have much resources to build a real house and test its usability, we transferred physical test into virtual. Research was conducted online where hundreds of thousands of people regularly participate in discussion almost about everything conceivable [12]. To be specific, we published our idea and pictures of prototype on Instructables.com which is a place for people to share creative ideas. Designing elements and user satisfactions of the current situations and initial prototype were compared to evaluate the first hypothesis. Out of our expectation, nobody mentioned the improvement of design factors such as signs. Instead, citizens felt it inconvenient to throw their wastes in a longer distance. As taxpayers, citizens indicated that it was CEC's responsibility to keep all public service in good condition. Hence, the gap between CEC and citizens is not only caused by physical design elements but expectations towards the other side. They both expect more effort from the other side to build a cleaner community without doing extra tasks by themselves.

Hypothesis 2 and 3

Typically, in a public service system decisions are made only by providers which is easily to be unfair to its user. Obviously, the crucial factor is not that residents have strong intentions to shift the burden to others, but that they consider it unfair that others, or the decision makers, shift the burden to them [11]. This suggests that the essential factor in recycling service system is about fair decision-making that does not cause any perceived injustice instead of lazy or any other personality traits. In other words, the perceived fairness of the process is a core aspect of infrastructure decision-making.

Learning from participatory design which is a method to design by creating a platform for active end-user

participation in the design process [10], we argue that participatory decision-making which is encouraging people to participate in making design decisions is an effective way to bridge the gap of different expectations.

BRIDGE THE GAP

Iteration

transfer low value into high

Compared the first prototype and current system, we reorganized the service elements through centralizing the bins. However, this new service concerns more about CEC, the service provider, but less about citizens. People are lack of motivations to throw their waste into a further place, which may lead to severer fly-tipping in the future. Thus, we suggested to transfer low value into high so as to motivate user to use the waste house. Building the waste house to be the place in the community that citizens are proud of will stimulate their willingness for walking extra miles. Taking getting people involved into consideration, another user research was conducted via interview in Out of the Blue, an art café in Leith (see figure 8). It is kind of the community center in Leith because of varieties of events, concerts, and exhibitions holding there. Human data explains that the three main factors that residents care most are green spaces, artistic atmosphere and history in that area (see figure 9).



Figure 8. Interview in Out of the Blue



Figure 9. What makes you proud of your community



Figure 10. Three new models made of acrylic

Waste houses

Three new models were made based on human data about what makes them proud of their community (see figure 10). Compared with the original prototype, these three buildings are far more beyond waste house. Instead, there are stories behind each of them. The first model is inspired by greenhouse which is eco-friendly and appropriately fitted into the green space. The transparent material enables enough sunlight inside the house, challenging the inherent impression of waste house which is dim and messy. The second model comes from an old church in Leith whose appearance is now totally changed (see figure 11). By means of bringing it back to residents' life, proudness will be created to provide user with a motive for using waste house more. In order to create an artistic atmosphere in the community, a modern architecture model is built. It originates from folded paper, one kind of recyclable waste, reflecting the concept of transfer low value into high.



Figure 11. South Leith church 1817

Decision-making

Three models

With three models of waste house, a vote poll in Google Form was created for people to choose their own house. The bar chart indicates a competitive result where those three models get similar votes (see figure 12). Obviously, residents have different preferences of their community. It is better to provide them with chance to decide their own community.

Which recycling house do you like best or make you feel proud if it is put into your community?
(37 条回复)



Figure 12. Vote for your community

Classification system

By means of the extensive influence of social media, a twitter survey was implemented in order to get people involved in deciding their own classification system. Participants are given nine kinds of waste that are ambiguous to classify in the current system and are allowed to throw these items into the right bins in their mind (see figure 13). Data was collected and visualized which illustrates that people's opinion towards how to sort these items has divergence which is also different from the current system. An app therefore was designed to collect human data about classification in the long run (see figure 13).

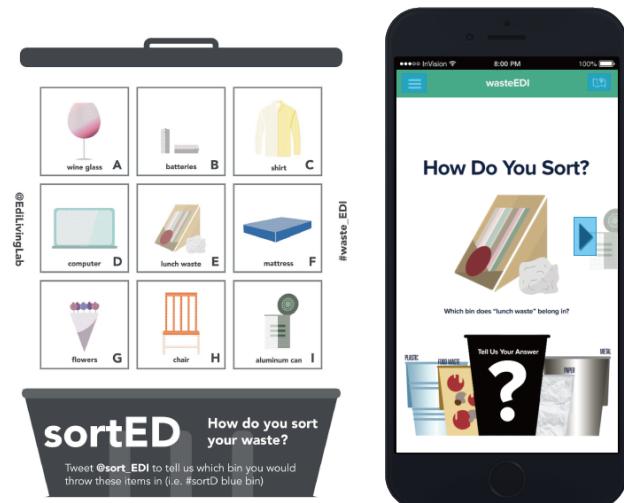


Figure 13. Classification redesign

Discussion

Although there is no direct evidence showing getting people involved in decision-making will bridge the gap due to limited time and resource to implement waste house, the third hypothesis was verified through comparison of this new system and the original prototype (see table 1). The table indicates that with the same system structure and main features from user perspective, through participatory decision-making user satisfaction level arose as well as the possible using frequency was increased.

| | New system | Initial prototype |
|-------------------------------|--|-----------------------|
| System structure | To build waste house in smaller community without bins on street. | |
| Main features in user's view | Clear classification signs, cleaner streets, more distance | |
| Participatory decision-making | Get user involved in deciding the building and classification system | Without user involved |
| User satisfaction | 79% | 14% |
| Probable using frequency | Once to twice a week | Once to twice a month |

Table 1. Comparison of new system and initial prototype

CONCLUSION

In this paper we presented a nine-week service redesign process in a school project in public service arena. Through field trips, prototype and online survey, we defined the gap between service provider and its user. We draw on various comparisons between current situation and newly design to verify the hypothesizes. We tried different methods to bridge the gap and it turns out that rather than optimize design elements, participatory decision-making is an effective method to keep a balance between CEC and citizens.

A limitation of this paper is the number of people who participate in the design process. As a school project which lacks user resources, even though we transferred physical test into virtual, citizens and governors who participated in the project were still limited. Further studies with more user resources would get more people involved in design decision-making.

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