INTERPERSONAL DIMENSION OF SERVICES

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ABSTRACT

Unlike goods, in most services customers are part of the production process. As a result, interpersonal interactions that occur during service production influence on the service outcome.
Although evidences of the influential role of human interaction in services are often found in previous studies, the focus has been on the interactions between service providers and customers, and how to serve customers to provide satisfying user experience.
This paper pays more attention on the interactions among customers. The rationale is twofold. First, not only interactions between service providers and customers, but also interactions between customers influence on the service outcome. Second, in case of certain types of services, such as 'collaborative services', service outcome is highly dependent on interaction between customers.
As an example of collaborative services, online-based carpooling services were analyzed. The result of case studies shows a positive correlation between the degree of sociability of services and the success of the service.

Keywords: Service design, Human-to-human interaction, Carpooling

INTRODUCTION

Services are differentiated from goods by a number of characteristics, such as intangibility, heterogeneity, inseparability (of production and consumption), and perishability (Zeithaml et al., 1985; Lovelock & Gummesson, 2004). As some of these characteristics demonstrate, human-to-human interaction is inevitable part of service.

As an example, *inseparability of production and consumption* illustrates the fact that services are produced and consumed simultaneously. In most cases, since the customer must be present during the production of services, inseparability "forces the buyer into intimate contact with the production process" (cited in Zeithaml, et al. 1985). Customers themselves have vital roles to play in creating service outcomes, and ultimately enhancing their own satisfaction and the value received. (Bitner, et al., 1997)

The level of customer participation required during service production varies across different types of services. Bitner et al. (1997) illustrated three different levels of customer participation, from low level participation to high level participation. While in some cases all that is required is the customer's presence during service delivery (low level of participation), in other cases customers can actually be involved in co-creating the service (high level of participation). In case of services that require high level of participation, customers have essential production roles that will affect the nature of the service outcome. Examples include all forms of education, and counseling services. (Bitner, et al., 1997)

This paper investigates the services in which the service outcome is highly dependent on customer participation. In particular, this paper pays special attention on 'collaborative services' in which the final users collaborate to produce solutions for a common need, based on peer-to-peer and collaborative relationships. (Jégou & Manzini, 2008) In collaborative services, benefits are reciprocally produced and shared by the participants, not offered by a service provider.

Collaborative services are distinct from other types of services since a high level of user participation is required, and interpersonal interactions among customers are as crucial as, if not more crucial than, interactions between a service provider and a customer. For instance, in case of carpooling service, the interaction between a user who offers a ride and another user who joins the ride plays a significant role in the service outcome, and both users' service experience.

By studying cases of collaborative services, this paper aims to examine the role of interpersonal interaction in the success of services, and implications for designing services to catalyze the interactions.

INTERPERSONAL DIMENSION OF SERVICE

The influential role of interpersonal interaction in services has been recognized in a number of previous studies. (Parasuraman, et al., 1988; Bitner, et al., 1990; Cook et al., 2002; Victorino et al., 2008) However, in most cases, the focus has been placed on the interactions between service providers and customers, and how to provide satisfying user experience by serving the customer in the way specified by the service organization. As an example, tools like service 'script' are used to provide front-line staffs a detailed guide including predetermined set of specific words, phrases, and gestures during a service encounter.

However, not only the interactions between service providers and customers, but also interactions among customers influence on the service outcome. For instance, in case of collaborative services the benefits are reciprocally produced and shared between participants. As an example, 'Lodge a student at home' is a service developed to match elderly people, who have an empty room in their house, with students who need inexpensive accommodation. (Meroni, 2007) In this service, the customers – both the landlord and tenant - perform the solution, and the benefits are produced together. Besides the rent, the landlords – the elders who are tired of living alone - benefit from having young people around, and getting help for daily chores. The tenants – students - benefit from having a room at a relatively low cost. Since they live together and help each other, the relation between them is an essential part of the service operation and one of the benefits. (Cipolla & Manzini, 2009) The quality of service outcome, and users' experience differ depending on the interactions between them.

Cipolla (2007) provided ample examples of services based on mutual collaboration, and intensive interpersonal relations between participants. Based on the case studies of them, she claimed that services have two dimensions: *interpersonal dimension and operational dimension*. The operational dimension of the service is its manner of functioning, whereas the interpersonal dimension is related to the evaluation and definition of the qualities embedded in the face-to-face encounters between the participants. These two dimensions are intrinsically related.

One end of the interpersonal dimension is high relational quality between participants, which is described as 'I-Thou' relation. 'I-Thou' relation is the most unique feature of being human. It is the ability to truly relate with the other, a mutual relationship including both dialog and encounter. (Cipolla & Manzini, 2009)

Collaborative services do not necessary require high levels of relational quality among participants, as the collaboration can occur on an anonymous basis without personally interacting with each other. (e.g. open source software development) Yet, relational qualities, such as trust, and friendship, are beneficial to the success of collaborative services. In particular, collaborative services that lead to environmental benefits, such as sharing, and bartering (Botsman & Rogers, 2011), are the cases.

DESIGN FOR SOCIABILITY

To investigate interpersonal dimension of services, this study employs research findings from Interaction design discipline. In Interaction design discipline, although the dominant focus has been on the issues concerned with human-machine interaction, human-human interaction mediated through products, such as 'sociability', has gained attention as well.

(Buchanan, 2001; Preece, 2001; Crampton Smith, 2007; Norman, 2010)

As an example, Preece (2001) claimed that 'sociability', together with usability, is the important determinants of the success of online communities. While the focus of usability is interaction across human-computer interface, the focus of sociability is human-human interaction supported by technology.

Preece argued three key components -'purpose', 'people', and 'policies' – contribute to good sociability, and influence how individuals interact with each other online. As Preece used the term 'online communities' to mean any virtual social space where people come together to get and give information or support, to learn, or to find company, this paper adapted Preece's framework to examine interpersonal dimension of online-based collaborative services.

CASE STUDIES – CARPOOLING SERVICE

Carpooling is an exemplary example of collaborative services in a sense that collaboration among users is highly required, and interpersonal interaction between users has a critical influence in service outcome.
Carpooling is the practice of two or more people using the same vehicle to travel to a common destination (Allen, 2009). It has been recognized as a sustainable way of travel since it reduces fuel consumption, carbon emissions, and traffic congestions. Users benefit from sharing fuel costs, and additional rewards such as access to HOV (High Occupancy Vehicle) lane during rush hours, and reserved parking lots, which are often provided by municipalities or companies encouraging carpooling.

However, carpooling has not been widely adopted yet in many countries. Among a number of barriers identified in previous studies, the most commonly mentioned barriers are 'fear of travelling with strangers', 'reduced flexibility', 'having to be reliant to others' and 'loss of privacy'. (DeGruyter, 2006)
A hypothesis of this paper is that many of these barriers are closely related to interpersonal dimension of carpooling services. Therefore, to attract more potential customers, carpooling services should be designed in a way to enhance interpersonal dimension, rather than operational dimension.

To examine if the interpersonal dimension of carpooling services has an influence on the success of the service, case studies were carried out.
For case studies, 45 cases of internet-based carpooling services were reviewed (source: Google directory, Online TDM Encyclopedia, Mesh directory Transportation section), and 12 services were selected based on the following criteria:

- Carpooling services that support daily commute (regular use), rather than occasional travel for leisure
- Services that have been run more than for 2 years
- Services in Europe and United states
- Services that have more than 5,000 registered users

Name	Since	Region	Number of users	Url
Carpool world	2000	USA	145,000	www.carpoolworld.com
Compartir	2000	Europe	56,619	http://compartir.org
Covoiturage	2004	France	600,000	www.covoiturage.fr
eRideShare	1999	USA	25,000	http://erideshare.com
Goloco	2007	USA	10,000	http://gologo.org
Liftshare	1998	UK	398,213	www.liftshare.com
Mitfahrgelegenheit	2001	Europe	1,300,000	www.mitfahrgelegenheit.de
NuRide	2004	USA	50,659	www.nuride.com
PickupPal	2008	USA	150,728	www.pickuppal.com
RideSearch	2008	USA	7,000	http://ridesearch.com
Roadsharing	2008	Europe	35,000	www.roadsharing.com
Zimride	2007	USA	300,000	www.zimride.com

Figure 1. List of carpooling services selected for case studies

Figure 2. Screenshots of 12 carpooling services selected for case studies

ANALYSIS

Based on Preece's framework for sociability, 13 items were developed (figure 3) in order to measure the degree of sociability of each carpooling service.

Purpose
clarity of purpose of carpooling (cost share, environmental concern, socializing)
People
possiblity to invite friends
availabilty of organizing users' own sub group (ex.friends, co-workers, trusted users)
visibility of (other) participants' presence
visibility of (other) participants' activities
visibility of (other) participants' past activities (number of trip posted, shared trip, summary of past trips)
trustworthiness of other's action (ex. reputation system)
diversity and richness of profile information
provision of direct communication tool for participants
integration with external social network services (ex. facebook, myspace, twitter)
Policy
privacy policies (protection of personal data) (ex. plate number, mobile number)
safety policies (requirement for verifying identity to become member)
security of transaction (ie. Paypal)

Figure 3. items to measure the degree of sociability of carpooling services

Purpose

According to Preece (2000, 2001), strongly stated purpose provides a reason for individual members to join the community.

The benefits of using carpooling services are various. Some users use the service mainly to share driving/gas cost, or to reduce carbon emission, or to have company. Case studies showed that a few carpooling services were designed to enable users to explicitly communicate his/her specific purpose of using carpooling service.

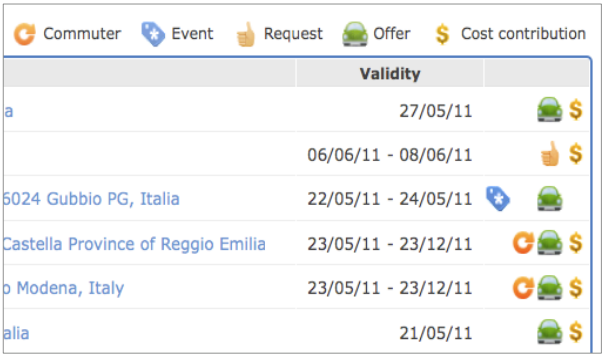

Figure 4. List of ride offer/request with indication of the purpose (screenshot of RoadSharing)

People

Appropriate representations of participants and their activities may increase users' sense of social presence and support better communication in online interactions. (Preece, 2001)

Interestingly, carpooling services that launched recent years show a tendency that presents trip posts with emphasis on the person who offers/searches the ride. (figure 6)

Figure 5. Ride posts focusing on travel route - origin, destination (Screenshot of eRideShare)

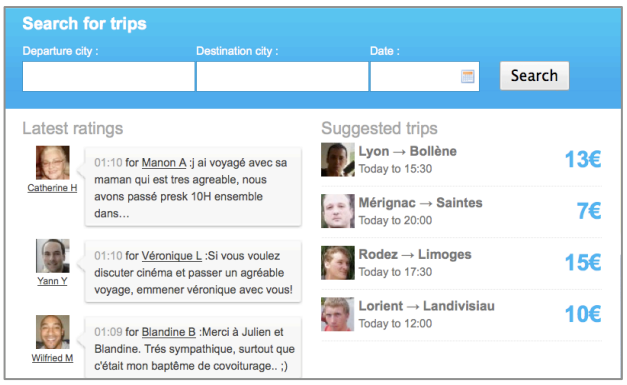

Figure 6. Ride posts with information about the person who offers/searches trip (Screenshot of covoiturage)

Another noticeable trend found among recently launched carpooling services is the integration of external social networking services, such as Facebook, and Twitter, into carpooling services. It plays a positive role in two ways. First, it enables users to organize carpooling within his/her existing social network, therefore reduces the fear of travelling with strangers. Second, even when the user travels with unacquainted people, external social networks provide an opportunity for users to learn about other users through the information on profile, activities, friends on the social network.

Policy

Policy includes formal policies such as requirements for registration, and privacy policies, as well as less formal policies like suggested rules, and rituals that guide people's interaction. Policies influence on sociability since they contribute to a sense of security, and trust, which has been recognized as a crucial factor to facilitate cooperative behavior, and

social interaction online. (Shneiderman, 2000; Preece, 2000, 2001; Hochheiser & Shneiderman, 2010) Users are more likely to participate in web relationship if they receive strong assurances that they are engaging in a trusting relationship. (Shneiderman, 2000)

Each carpooling service employs different features to assure trust among users. Reputation system is one of the most common examples. Users can gauge other users' trustworthiness based on the evaluation (positive/negative feedback), and comments from other users (figure 7), or status given by the service organization (figure 8).

Figure 7. Example of rating system (screenshot of Roadsharing).

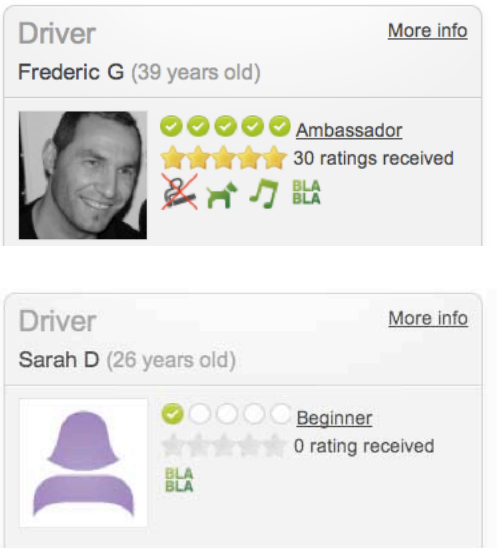

Figure 8. Types of statuses indicated on profile. Ambassador(above), and beginner(below). (screenshot of Covoiturage)

Some services implement strict identity verification processes. As an example, NuRide does not allow users to use the service unless the user's identify is verified through organization email, mobile number, or facebook account. Zimride is run based on semi-private networks for a university or company. In order to join the network, users should register by using email accounts affiliated with the university or company.

RESULTS

Carpooling services showed varying degree of sociability. To examine the role of interpersonal dimension of services in the success of the services, the degree of sociability of each service and the number of registered users were compared. Although the number of registered users can be affected by other factors, the analysis showed a positive correlation between the degree of sociability and the number of registered users. (figure 9) Popular services that have more than 600,000 users (data accessed 1 October, 2010) have more sociability features, compared to services that have less than 100,000 users. The difference is more evident when a group of the most popular services (Mitfahrgelegenheit, Covoiturage) are compared with a group of the least popular services (RideSearch, eRideShare).

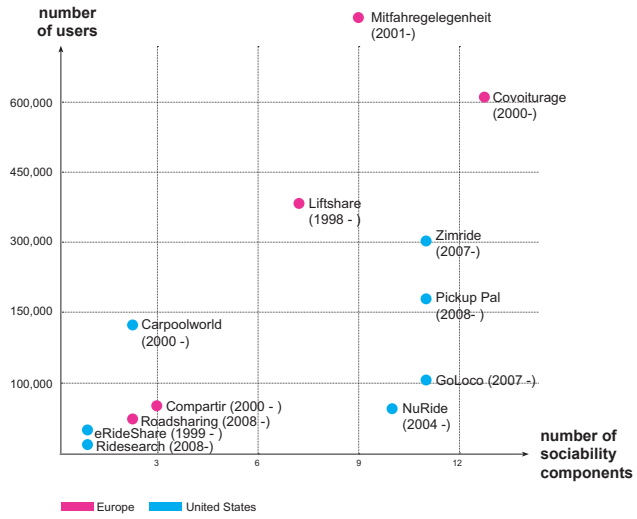

Figure 9. Comparison of 12 carpooling services

Another finding was the common features found among popular services. In the group of most popular services, it was found certain features are commonly implemented, such as 'possibility to invite friends' ' integration with external social networking service' 'direct (internal) communication tool (channel) among users.

DISCUSSION

Interestingly, carpooling services that launched recent years embrace carpooling as a social activity, rather than just a 'transport' service, and implement

various features to facilitate interaction among users. Compared to services that focus on providing matches only based on the users' travel route and schedule, it was found that services fostering social aspects of carpooling have more users.

Similarly, Brereton and Ghelawat (2010) showed that people preferred to use informal ways of expressing rides than filling in formal fields about factual details of rides in terms of origin, destination, and departure time. When informal messaging tool was provided, participants were able to make an offer more personal, including sharing the personal context of the ride offer or request, than simply entering travel information. Moreover, it was observed that participants like to share ones whereabouts with ones friends, even if rides are not shared.

The role of interpersonal interaction in service production is significant not only to collaborative services, but also other types of services. Folizzi et al. (2011) showed that co-production of value in domestic services, such as handyman and pet-sitting services, took place in situations where both customers and service providers used a relational model to frame the service, rather than utilitarian model. In these cases, the service relationships were described as high valuable and reported more positive service experiences overall.

CONCLUSION

By studying carpooling services as an example of collaborative services that requires a high level of user participation and collaboration in service production, this paper investigated the role of interpersonal dimension of services in the success of the services.
Case studies on carpooling services showed a varying degree of sociability of carpooling services, and a positive correlation with the success of the service. Further empirical research on other examples of services would be needed to consolidate the findings. Comparisons with other factors related to the operational dimension of services, such as accuracy of route coordination, will also provide more insights on the role of interpersonal dimension of services.

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