

Indebtedness and Reciprocity in Local Online Exchange

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ABSTRACT

Many existing and emerging online systems allow people to share content and coordinate the exchange of goods and favors in local geographic settings. We present a qualitative case study of user experiences concerning exchange and reciprocity in local online exchange. Findings from eleven in-depth interviews (containing forty-nine separate exchange experiences) reveal an aversion to indebtedness and several user behaviors that lessen these negative feelings: (1) offering small tokens of appreciation to exchange partners, (2) understanding and accepting the indirect nature of generalized exchange, (3) managing expectations by framing offers and requests carefully, (4) minimizing efforts needed in exchange processes, and (5) bartering and exchanging for a third party. The paper contributes to our understanding of emergent behaviors and norms in local online exchange systems. We discuss design implications from these empirical insights that can help alleviate the discomfort of indebtedness and better encourage and sustain participation in systems of indirect reciprocity.

Author Keywords

Computer-mediated communication; online community; social exchange; gift economies; reciprocity; debt of gratitude

ACM Classification Keywords

K.4.3 Computer-Supported Collaborative Work, H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Human Factors

INTRODUCTION

Social exchange is a fundamental human activity that helps to explain social behavior through the process of exchanging valued goods and services [3]. Beyond the material value of exchange, participation in systems of

social exchange can produce social value for participants and for communities as a whole, including commitment, emotional attachment, and solidarity [5]. While social psychologists have long noted the value of participating in various forms of social exchange at the interpersonal and societal levels [35, 3, 19], the problem of learning about norms of exchange in a given community remains a challenge for theory and practice.

We present a qualitative case study focusing on *indirect exchange experiences* (where giving is not contingent on receiving gifts or favors). We focus on users of Kassi, a local online exchange system where individuals can engage in indirect exchange, as well as other forms of direct exchange. Kassi is a service in which users can lend, rent, give away and sell items, give and get help, or share rides with people nearby. By scoping our analysis on indirect exchange, we only examine non-monetary exchanges such as giving and getting help, giving away goods, and lending goods and services.

This paper seeks to advance our understanding of how individuals *interpret* and *respond* to norms of indirect social exchange within a socio-technical system. Our focal problem raises several theoretical and practical sub-questions that we address through our empirical study: How do individuals make sense of indirect reciprocity and understand how to make use of a novel system of online exchange? And, what can we do as designers, researchers, and practitioners to alleviate and address feelings of discomfort while facilitating ongoing indirect exchange?

This work contributes to our understanding of emergent behaviors and norms in local online exchange systems - an important area for CSCW research, especially among designers and practitioners who build and maintain online systems that facilitate social exchange. We discuss how the design of the Kassi system supports social exchange and indirect reciprocity, which in turn creates an opportunity for feelings of indebtedness to emerge among users. Following our empirical study, we conclude with a discussion of three broader design implications: (1) the importance of matching *similarity and status characteristics* for combating feelings of indebtedness, (2) publicly sharing experiences as *recipients* of gift exchange, and (3) the critical role of

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exchange *process* rather than just outcomes in online social exchange.

EXCHANGE, RECIPROCITY AND INDEBTEDNESS

Social exchange is vital to social interaction. Social exchanges are a core part of romantic relationships, friendships, barter, negotiations, favors and gifts. Most empirical research identifies three major types of social exchange [4]: negotiated exchange, reciprocal exchange, and generalized exchange. *Negotiated exchange* tends to include economic exchanges such as bargaining and prior agreements on trades or purchases. *Reciprocal exchange* includes direct reciprocity such as gifts or favors that are sometimes repaid, but lacking any terms or agreements such as those in negotiated exchange.

Generalized exchange describes acts of indirect reciprocity in the form of either collective goods (where individuals contribute to an outcome that benefits many) or networks of indirect gifts and favors where the providers rarely receive benefits from the same recipients (e.g., stranded motorists helping one another on the highway) [8, 38]. Anthropologists first observed and described systems of sustained generalized exchange in the Kula Ring: a stable exchange of decorative items with no real monetary value, but substantial symbolic value among the Trobriand Islanders of Papua New Guinea [23, 21]. Mauss [23] described this and other similar systems as *gift economies* to contrast them with systems of bartering and negotiation.

A central aspect of all types of social exchange is the norm of reciprocity: the empirical observation that individuals tend to feel a sense of responsibility after someone provides a gift or another act of kindness. Gouldner [15] found that while the application of reciprocity varies widely by culture, the norm is largely ubiquitous across societies. Furthermore, the expressive value of reciprocity can increase solidarity between exchange partners through either symbolic or communicative value, “*over and above the instrumental value of the benefits provided*” [25]. In Emerson's formulation of social exchange theory in the 1970's, he viewed reciprocity as the foundation of exchange, where norms of obligation emerge to *reinforce* reciprocity [9, 10].

In addition to the positive benefits of solidarity from acts of reciprocity, there are also some psychological challenges for individuals. People tend to reciprocate the kind acts of others, and non-reciprocated actions can leave one with an uncomfortable sense of *indebtedness*—even if the original action or gift was unsolicited. An essential part of Gouldner's description of the norm of reciprocity is that, “*people should help those who have helped them, and people should not injure those who have helped them*” [15]. Greenberg [16, 17] extended Gouldner's argument by describing the basic psychological state of indebtedness as, “*a state of tension having motivational properties such that the greater its magnitude, the greater will be the efforts to reduce it*”.

The problem of indebtedness can be a significant concern for any system designed to facilitate and encourage social exchange. An aversion to indebtedness may lead potential exchange partners to be unwilling to accept gifts or help, especially if one does not expect to be capable of reciprocation in the future. Prior research indicates that individuals tend to feel an obligation to return the benefits they receive from others, but they are also psychologically and emotionally averse to over-benefitting from social interactions [36]. As we detail below, the challenge of dealing with indebtedness is a core theme in our empirical research.

SOCIAL EXCHANGE IN ONLINE COMMUNITIES

To date, the largest body of work on online exchange processes has primarily dealt with direct negotiated exchange in online systems such as EBay¹ and other economic exchange markets. In this domain, a central challenge is to reduce uncertainty among people who come together in an online market to negotiate compensation for goods and services. The main focus of research on these online economic exchange markets includes outcomes such as compensation, reputation, and trust [7, 6, 31, 20].

Of course, not all online exchange systems exclusively deal with direct economic exchange. Vast online information pools and other forms of content creation and sharing online create *group-generalized exchange*: where individuals receive rewards from a collective good without contributing to it (e.g., free-riding in collective action) [38, 8]. There are many examples of online systems where group-generalized exchange is prevalent, including Wikipedia [1], corporate knowledge sharing systems [11], peer-to-peer file sharing networks [12], and geographically local online communities such as Cyclopath [29, 22]. In each case, individuals make contributions that collectively create a public resource that benefits everyone—including those who never contribute.

An emerging body of research focuses on *network-generalized exchange*, where individuals engage in indirect reciprocity within a defined community [38]. Studies of online exchange communities comparing direct exchange on Craigslist² and generalized exchange on Freecycle³ [37] support the finding from prior laboratory research that network generalized exchange creates stronger feelings of solidarity than direct exchange for both givers and receivers [25]. In addition, repeated receipt of unilateral gifts can lead to group identification, or positive feelings that are then attributed to the group as a whole [13].

Finally, some of the aforementioned online exchange systems combine online and offline participation with the

¹ <http://www.ebay.com/>

² <http://www.craigslist.org/>

³ <http://www.freecycle.org/>

same users over time. For example, Freecycle and NeighborGoods⁴ support the indirect exchange of goods and services in geographically local contexts: Individuals connect online, but exchanges take place face-to-face. Encouraging and sustaining participation is a central challenge for these different systems, regardless of whether they function online, offline, or in online-offline hybrid forms (e.g. [11, 27, 28, 29]).

KASSI – A LOCAL GIFT EXCHANGE SYSTEM

Kassi is an online gift exchange system designed to support the exchange of goods and services in geographically local communities. The purpose of the service is to help people in the course of their everyday lives by enabling them to help each other in any way they see fit – by sharing information or goods, using their special skills, or by participating in time-consuming tasks. Kassi is an example of a system that spans the online-offline dichotomy, similar to online bulletin board and classified advertisement systems (e.g. Craigslist.org). Physical location and face-to-face interaction are often crucial in Kassi, since few exchanges can be completed solely online.

Kassi users have stable user names that persist in the system as they interact over time. Many users choose to use their real names while others use pseudonyms. By using stable online identities in a geographically local context (e.g., university or other existing location), Kassi encourages a sense of community and trust that is difficult to create in large-scale anonymous social exchanges [7].

The main content on Kassi's front page is user offers and requests (see Figure 1). These listings can be searched and browsed by other users. When a user finds something of interest, she can contact the person who posted the listing either by sending them a private message or by commenting the listing publicly. Once individuals agree to make the exchange, they can then discuss logistics with Kassi messages or via e-mail, text messages, or telephone. An exchange takes place when an item or favor is successfully transferred between any two users. Kassi's interface directs users to post and/or browse offers and requests.

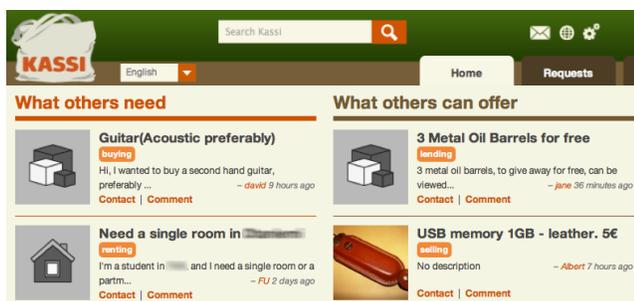


Figure 1. Examples of exchange proposals on the front page of the local gift exchange system Kassi.

Users are free to offer and/or request as many favors, services and items as they like. The service is designed to support direct communication to allow all forms of exchange without implying any particular type of interaction such as negotiation or gifting (e.g., participants are completely free to decide how they want to offer or request goods and services). Typical activities in the community include selling textbooks, searching housing, and offering favors to others.

RESEARCH MATERIAL AND METHOD

This paper focuses on the use of Kassi within a university community (including both students, staff and faculty) in the capital region of Finland. In the end of April 2012, the community had 4464 members. In a pattern typical of many online communities, more than half of the members never posted a listing on Kassi, while a group of less than a thousand members produced most of the content on the site. Between May 2011 and April 2012, there were on average 2243 weekly visits to the site. During this year, altogether 2833 listings were posted, 2176 of them offers and 657 requests. Users gave feedback after a completed exchange 679 times. Of the 2833 listings, eight percent were free offers and gifts, while another eight percent dealt with lending and borrowing. The combined 16 percent of non-monetary exchanges (gifts, lending, and borrowing) constitute the focus of our empirical analysis of indirect exchange experiences below.

We chose a qualitative approach for this research in order to build a rich understanding about (1) how norms of exchange and reciprocity are interpreted and applied in the context of local online exchange, and (2) ways to lessen uneasy feelings of indebtedness in indirect exchange processes. Our primary research material consists of eleven semi-structured individual interviews from which we identified 49 distinct accounts of exchange processes using the Kassi service.

Participants

In this research, we study *active, experienced participants*: individuals who have given and/or received goods and/or services with other Kassi users at least once. The number of exchange experiences for each participant in our sample ranged from one to eight. Among these active users, the average number of offers or requests was between one and two.

We recruited individuals who engaged in one or more exchanges by screening Kassi usage logs for active participation during the previous academic year. We focus explicitly on active, experienced participants because only those participants who have engaged in at least one gift/favor exchange can relate their experiences, responses and behaviors from prior interactions. By confining our scope to only active, experienced participants, we lose the opportunity to get an inclusive picture of *all* Kassi users (e.g., lurkers and new users with no experience). However, our purposive sampling is justified precisely because our

⁴ <http://neighborgoods.net/>

theoretical focus (feelings of indebtedness and reciprocity created after an exchange) requires that participants have had an opportunity to develop opinions from experience rather than conjecture.

We contacted twenty-four users by email and asked them to participate in an interview. We also recruited potential interviewees through an interview request posted to Kassi. We sought as many interviews as possible, and we stopped taking additional interviews when our primary thematic categories related to perceptions of exchange norms and indebtedness began to repeat substantially.

This led us to a combined total of eleven participants. We interviewed six male and five female participants. Four participants created their accounts soon after Kassi's open beta release in 2009. Another three used the service for 7 to 20 months. The final four used the service for less than 6 months. Most of the participants (N=7) were technology students in the age range from 21 to 27 who were introduced to Kassi through study-related activities. The exceptions were two students from other campuses, and a relatively older employee of the university. Finally, we interviewed one student from another university who originally found Kassi through a search engine.

Interview Procedure

Two of the authors split the interviewing tasks, using the same semi-structured interview outline. The senior interviewer trained the second interviewer on the format and style of interviews to ensure internal consistency. All interviews were conducted in spring and summer 2011 by one of the two interviewers. The interviews lasted from 30 to 90 minutes. The interviews were arranged in locations convenient for the interviewees, such as the campus library, a café, or the participant's home.

Our interview questions focused on participants' views and feelings concerning exchange processes in Kassi. In each interview, the discussion centered on specific exchange experiences. The interviewer and the participant talked through participants' experiences of exchange processes in a detailed manner. We focused on participants' perceptions of their exchange interactions, as well as any apparent 'significant moments' in the exchange experience. We prompted discussion on reciprocity with questions, such as "did anything surprising happen?", or "what would have made the experience worse?" about participants' initial expectations towards local online exchange, and later, their reflections of exchange processes. The questions covered topics including worries and hopes concerning reciprocity, indebtedness, and fairness. We did not ask direct questions about reciprocity (as a specific word), though we did ask follow-up questions once participants raised an issue about reciprocity, exchange, or related concepts.

Interview Focus: Exchange Processes

Most exchanges (30 out of 49) described by our participants were completed successfully. However, the interviews

revealed a variety of ways in which an exchange process might not be fully successful. For instance, a person who offered to help with sewing had to turn down a request for help when she deemed that the task was too difficult. In other cases, the item to be exchanged had already been given away to someone else or it did not meet the needs of the person who requested it. All attempts at exchange are important for our analysis since the outcome is only a small part of the exchange process (requesting, offering, reciprocating, coordinating practical arrangements, etc).

The exchange processes in our data concerned a wide variety of goods and services, ranging from giving away an unneeded table, providing avalanche gear, sharing a ride to another city, getting advice on how to take care of plants, to receiving help in moving from an apartment to another. This study set out to understand non-negotiated social exchanges, though there were some mentions of negotiated exchanges (e.g. selling or renting items/housing) in our interviews (N=11). For this research, our primary analysis is centered on the thirty-eight exchanges in our material concerning lending or giving away goods (N=26), and providing favors (N=12).

Method of Analysis

We frame our analysis from the perspective of social exchange theory, which emphasizes the role of interpersonal relationships in the trade of socially and/or economically valuable resources. We chose to apply qualitative, interpretive methods [33] because they allow a grounded exploration of participants' conceptions of reciprocity, indebtedness, and fairness in the context of local online exchange. In brief, our analytical approach was grounded in, and driven by the research material.

We began the analysis by identifying the instances that we considered illustrate (1) experiences and perceptions of reciprocity and indebtedness and (2) ways to lessen uneasy feelings of indebtedness in exchange processes. After picking up these instances from the transcripts, we compared them to one another to identify themes that would describe the phenomena. Following the principles of constant comparison [14], we again reflected the themes we had constructed to the material, and modified them, until all the instances would fit under the themes. The themes are presented as subchapters in the following sections.

With the exception of two international students whom we interviewed in English, all interviews were conducted in Finnish. Thus, most interview excerpts in this paper are translations from original Finnish transcripts. To protect the anonymity of the participants and their friends and exchange partners, the names mentioned in the following excerpts are pseudonyms. Participants (PX) are identified by numbers (in place of "X") in the interview excerpts.

SOCIAL EXCHANGE EXPERIENCES WITH KASSI

We discuss participants' exchange experiences along two primary themes: (1) the aversion to indebtedness and

perceptions of fairness, and (2) eagerness to provide something of value to others in the local community.

Aversion to Indebtedness and Perceptions of Fairness

An aversion to feeling indebted at the completion of an exchange was widely present in our interview material. Four participants explicitly stressed that they did not want to ask for something without giving something in return. Participants noted that indebtedness feels unpleasant and worrisome. An appreciation for the norm of reciprocity was present also in the other seven interviews, albeit in a less explicit form, in participants' expectations that neither of the exchange partners remains indebted.

One participant expressed an extreme view of how one should live without being dependent on others: *"The way I see it people should survive on their own. I don't want to bother others in that way. I somehow avoid the sense of being indebted."* (P4) Other participants did not share such a strict perspective against asking for help from anyone as far as possible, but the good will of others was considered so precious that one should resort to it only when in a serious need. The worry of burdening others was well illustrated by one participant's comparison: *"If you don't really need it, then it feels a little like being a parasite, that you bother others without a reason."* (P1)

In the initial process of making requests and responding to offers, participants expressed concern about being a burden or a nuisance by asking for excessive efforts from others. One participant illustrated this sentiment as he recalled the delighted surprise of noticing that the person lending him an electronic drill was so happy to help him use it: *"Well, I assumed that I would be more of a nuisance to that fellow. But on the contrary, he seemed really happy [in the situation]--"* (P1)

Another participant remembered a good experience of receiving a favor via Kassi. However, as she did not have an opportunity to return a favor to anyone in the community yet, she felt stuck with a sense of indebtedness: *"I don't think it could have gone any better. But I have not gotten a chance to return the favor to anyone, so I still owe that favor."* (P2)

Next to expressing an aversion to feeling indebted to others, participants also indicated that they don't want to be cheated by a bad or unfair deal. It was considered best to aim for what the participants considered 'fair reciprocity'. For instance, one participant who offered proofreading of English texts on the site explained the boundaries of her willingness to help without compensation: *"I think if it's a small thing, I could just do it for them but if they wanted me to proofread like a thesis, or really, something really big, then that should be more like some kind of trade or service."* (P 10) She was also wondering whether the reason she had not yet been contacted was that others did not know what to offer in return: *"--maybe people expect that you have to trade the service-- so they have to think 'what can I*

offer?', like a fair exchange, maybe people are thinking about what to offer." (P10)

When it comes to non-negotiated exchanges, our interviewees seemed to be more preoccupied with being fair-minded and avoiding indebtedness than worried about being taken advantage of or treated unfairly by others. Put differently, the norm of reciprocity is consistently more salient in our interviews than profit-driven self-interest. Among our participants, it was considered better to give too much or to withdraw from participating altogether rather than to feel indebted to others. The interviewees expected compliance to this norm from their exchange partners as well.

Eagerness to Contribute

Another characteristic that describes our participants' experience of exchanges is the eagerness to contribute to the community by offering something to others. Participants expressed the most reward from actions that clearly contributed something of value to others in the community. The possibility to do something concrete that was also in line with their personal values, such as altruistic sharing, recycling and sustainability, was another aspect that rendered participation meaningful. As the following excerpt illustrates, experiences of being able to help out and contribute were rewarding: *"It makes me feel good, when I lend things. -- And then it makes me feel good, too, to be able to help someone else own fewer things. By lending what I have."* (P11) Participants expressed getting a lot out of 'helping others' (by responding to a request or offering something to others), especially when they felt that their efforts were valued and appreciated: *"I noticed that people are grateful that someone comes and helps them, that makes me feel good for sure"* (P5).

Participants appreciated opportunities to 'give (back)' whenever they received something from someone else. Recipients often tried to reciprocate either directly with another individual or by making an effort to provide something of their own to the community. Participants indicated that they would sometimes post an offer on the site after they received something from others, especially if their offer for direct reciprocation had been rejected. We identified five exchange processes where an offer a participant had posted had not been taken up by others. These participants were hoping that someone would contact them so that they would get a chance to contribute: *"--I have a somewhat anticipating feeling, like 'come on, someone request something now'. Or a little like that, it's not so dramatic. A slight anticipation. I'd like to get to try it out, that would be fun, I wish I would get the chance to lend something, even if it would be only something like lending a hammer, like 'here you go'"* (P1)

It seems that in our participants' minds, providing an item, a favor, or some other kind of 'help' to others are all aspects of community engagement. Even though participants enjoyed making such contributions, they did

not necessarily expect others to feel the same way. On the contrary, they expressed concern about burdening or bothering others with their needs. This general sentiment is well illustrated in the aforementioned comparison of accepting help without becoming a ‘parasite’ to the contributor. In sum, participants held somewhat contradictory framings of their own participation in social exchange versus the participation of others. The disconnect between one’s own needs and those of the ‘generalized other community member’ may lead to a failure to appreciate the value that one provides in their role as a beneficiary of others’ contributions.

EMPIRICAL INSIGHTS: REDUCING INDEBTEDNESS IN SOCIAL EXCHANGE PROCESSES

Having identified our participants’ reluctance to risk feeling indebted to others, we analyzed the research material for *intentional or unintentional* behaviors that lessen uneasy feelings of indebtedness. While our interviews are specific to a particular, dense student community embedded in the generally trusting and cooperation-oriented Finnish society, our insights from user responses and behaviors can apply to local online exchange in other societies. In the following sections we present five key ways that participant behaviors alleviated feelings of indebtedness in exchange processes or created a situation where personal obligation was significantly lessened: (1) offering small tokens of appreciation to one’s exchange partners, (2) understanding and accepting the indirect nature of generalized exchange, (3) managing expectations by framing offers and requests carefully, (4) minimizing the efforts needed in the exchange process, and (5) bartering and exchanging for a third party.

Offering Small Tokens of Appreciation

Based on participants’ experiences, potential compensation for efforts related to exchanges were often negotiated face-to-face at the end of the exchange process. However, when it comes to providing favors, donating goods, or lending items, direct compensation is not appropriate or sometimes even possible. We identified five accounts of exchange processes where participants navigated their way out of indebtedness by offering little tokens of appreciation for their exchange partners.

Small, unsolicited gifts can be understood as a symbolic gesture that eases feelings of obligation by converting a unilateral giving situation into one that approximates direct reciprocity. For instance, one participant *insisted* on giving a small token of appreciation for the person who helped him. Finding a way to pay back the favor was especially important to him: “*Well first I felt a little unsure and anxious of how this will go and whether it really is ok that I borrow the power drill. -- But then afterwards I had a really positive feeling of how easy it was and then of course I gave him a little cash for coffee so that also made me feel good that I at least somehow paid the favor back to him. So then; I did not feel at all that I would have been a burden for him.*” (P1)

Another participant explained how he offers to reciprocate, without a serious expectation that his offer would necessarily be accepted. Whenever he receives a book from someone, he invites them to take in return one from his collection: *I have received books from there (via Kassi), and in that sense it has been reciprocal, that books have been exchanged, or I have had some extra ones, so ‘if you happen to be interested, feel free to take one’. Returning the favor, in a way.* (P4)

Furthermore, giving public feedback can be considered as a small token of appreciation—especially in a system that does not require feedback or use reputation metrics to the same extent as some other systems such as Ebay or Couchsurfing. In Kassi, the point of giving public feedback is to acknowledge the value the exchange partner has provided and to thank her/him. A participant who was not willing to accept cash as a reward for an exchange valued feedback, and subsequently expressed disappointment when she did not receive it after a successful exchange: “*Another time, I gave away mugs to a young student, and she offered to give me a little cash for coffee, so I was like, I don’t want any money, just take them (the mugs) and put them in use -- But then it was a little curious that she didn’t for instance give me feedback in Kassi*” (P7)

Importantly, these small tokens of appreciation were not supposed to be a direct compensation (e.g., exchanges that approximate equivalent value) for the efforts and value provided by one’s exchange partner. When the exchange was not clearly a monetary transaction like buying or selling goods, paying for an item or a favor was not expected. However, it was deemed important to find a way to express gratitude – and, on the flipside, to feel acknowledged and appreciated for participation. As one participant explains, an unexpected, small acknowledgement can give a positive afterglow: “*I think that he was really grateful for that, you could see from how he left that box of chocolates for me. It made me feel really good, since he really didn’t have to do that, as I had been the one to offer lending that item.*” (P11)

Offering small tokens of appreciation, gratuitously accepting them, or rejecting gifts as “kind but unnecessary” is important for acknowledging one’s exchange partner and managing feelings of indebtedness. The interpersonal discussions stemming from the small gestures of appreciation liberated participants from a sense of indebtedness and feelings of unfairness or disappointment due to an ungrateful exchange partner. Alleviating such feelings was important for the participants and sometimes encouraged further participation.

Understanding and Accepting the Indirect Nature of Generalized Exchange Over Time

Our research material included instances of indirect reciprocity where individuals paid their debts of gratitude not directly to their exchange partner but to someone else in the community, that is, they engaged in network-

generalized exchange [38]. Being able to give back to someone in the community made it easier for the participants to accept the lack of direct reciprocity. One participant explained the idea of reciprocating with the community instead of with one's direct exchange partner in the following way: *"It feels like 'okay, I can borrow this'. And then if someone needs, for instance, a hammer from me, I'll lend it. That way we'll be okay with the community."* (P1)

The idea of evening out any debts of gratitude with the community, not directly with one's exchange partner, has been a part of the philosophy underlying Kassi since the service was first created. However, this idea is not communicated to users in any explicit way (e.g., the Kassi platform and user interface does not explain or otherwise elaborate on expectations of exchange aside from the idea of sharing with the community). While three participants expressed explicitly that the "pay it forward to the community" aspect of Kassi appealed to them and was a motivation to participate, engaging in indirect, network-generalized exchange was not instinctive or self-evident. One participant told how her feelings of being indebted were lessened when an exchange partner (in this case, one of the developers of the service) had explained to her that direct reciprocation is not necessary: *"Well I guess I did remain indebted but then he explained that to me, that I can offer a favor to someone else, something I can do, so then we'll be square."* (P2)

Amongst our participants, those who had had more exchange experiences were more prone to advocate indirect reciprocity within the community – a finding that indicates that network-generalized exchange was understood and accepted as an idea only after some initial period of learning and familiarization. In the following excerpt, a participant explains how his thinking changed after a first, positive exchange experience: *"Well at least after that first exchange event, I was feeling open to it and I listed also the rest of my tools there (on Kassi), so then, if nothing else, if I can't pay back my debt of gratitude to that person, then at least I can lend things to others if they need something so in that way the common good is sustained."* (P1)

Managing Expectations of Reciprocity by Framing Offers and Requests Carefully

As Kassi does not spell out how exactly users should manage and coordinate exchanges, people may hold different expectations for how the exchanges should take place. As we have seen in the previous sections, some participants were happy to reciprocate indirectly, while others (sometimes the same people in different exchange processes) were more comfortable when they could offer a little token of appreciation directly to their exchange partner. Three participants brought up the helpfulness of spelling out expectations of reciprocity when making an offer or a request. In other words, these individuals emphasized the importance of framing the initial requests

and offers as a way to reduce uncertainty about the exchange.

A good example of the importance of framing came from a participant who used Kassi to join a carpool. While the compensation of the driver's efforts and investments were eventually (and successfully) negotiated face-to-face, the participant explained that the process would have felt even easier if the expectation of sharing fuel costs would have been expressed explicitly from the beginning: *"Well, I don't know whether that might have frightened people, but maybe it could have been even smoother if in the offer there would have been a mention of sharing the costs of gas, like 'let's split gas' or something like that. I mean, it is a Finnish assumption of politeness that of course we'll share but (it would have been easier if it was spelled out)"* (P3)

Another participant made an offer to help people who were moving in or out of an apartment. He stated that he did not expect compensation but that he would not reject it either. Such a wording, perhaps unsurprisingly, had led others to reward him in a variety of ways. The participant felt comfortable about the situation since although no explicit agreement had been made, there was also no need for negotiating the 'right' level of compensation or reward: *"In this latter case, it went in line with my offer where I had written something like 'I don't expect a compensation but if you want to give something in return, feel free.' So in this case, either, it had not really been agreed upon. But the person wanted to (give a reward). And I, on the other hand, didn't reject that."* (P5)

Finally, one participant noted that the offer he responded to stated that the item offered was free, so there was no need to reciprocate directly or offer anything tangible to express his gratitude: *"There was nothing like that. She had said it's for free. So then I didn't suggest a packet of coffee or anything like that in exchange."* (P4)

In all of these cases, initial online postings on Kassi facilitated subsequent face-to-face interactions. When some form of expectations management concerning reciprocity was clearly explained from an initial posting, participants felt less awkward about entering an exchange. Framing an exchange offer or request carefully in terms of what to expect and how to reciprocate is helpful in managing expectations, reducing uncertainty, and building a shared understanding of the aims of the exchange process.

Minimizing the Efforts Needed in Exchange Processes

The desire to simplify exchange processes is another way to lessen indebtedness in exchange. Participants attempted to keep exchange processes as effortless as possible to reduce the burden to others as well as for their own convenience. Switching to a more convenient communication channel is one common way to simplify an exchange. The following excerpt depicts a typical flow of communications during an exchange – the switching from one medium to another as the exchange process proceeds: *"I think, we did talk*

through Kassi first but maybe he preferred e-mail, so we went for e-mail and then I called him, to see when he had the time for me to come over but after that (we switched over to) sending text messages 'cause I don't want to call all the time and disturb him.' (P10)

Participants were troubled when coordinating an exchange turned out to require more effort on their part than they had originally intended. This was especially evident if the person receiving an item or a favor was not actively working to complete the exchange. For example, one participant's experience taught her to be stricter about clarifying what she is or is not willing to do for others. While the particular exchange ended successfully with positive feedback, the participant disapproved of being left to make the practical efforts the exchange necessitated – especially since she was giving away an item for free: *"There was this coffee table that he couldn't pick up, really. I guess I could have pressured him a little more -- but then I said 'ok, I'll bring it on the bus to you' -- so that was a little [burdensome]. -- But then he did thank me in the feedback so that made me feel good about it"* (P7)

Another participant expressed similar concerns regarding the need to retrieve items that were loaned rather than given away. In this case, the participant lent a backpack to a fellow student: *"Sophie returned it by bringing it back to our place. -- That, in my opinion, was a nice gesture since when I have lent something to someone it is nice if the borrower brings it back to me so that I don't need to bother (to pick up the item)"* (P11). What is inherent in the participant's perspective is that kind deeds done for others imply that the recipient should be the one who makes further efforts to follow up and return loaned items. This was reiterated in her account of another exchange event: *"Yeah, there was then a little bit of a hassle, I had a lot of work and he was always busy in the evenings. But then, I took the attitude that he has to come and pick it up from me from here if he wants to borrow it (a backpack)"* (P11)

When expectations of responsibility and accountability were not met, participants felt burdened and expressed an overall sense of imbalance in the exchange. Participants worried not only about potential conflicts resulting from material damage, but also about the flow of the exchange process before lending their possessions to others: *"Well, of course if the items get broken. Or then the exchange of the items, like if it turns into a huge hassle, like they can't pick it up from the student village (where the interviewee lives) or they can't return it here, if they are like 'come and pick it up'. Things like that, that would cause me trouble, would disappoint me."* (P6)

In sum, indebtedness stems from both exchange outcomes and efforts made during exchange processes. Participants' experiences with issues of practice and procedure were critical to their overall perceptions of successful exchange and their desire to continue participating in the future.

Bartering and Exchanging for a Third Party

Finally, we identified an unexpected usage pattern that illustrates how local online exchange not only embodies a "pay it forward" philosophy, but also sometimes creates a "search it forward" mentality in which individuals find goods and services for others in their existing social groups. We identified four instances where a Kassi user turned to the service in order to solve someone else's problem. For instance, one participant promised a friend to keep an eye out for skates. When she stumbled upon the right size of skates, she set up a meeting for the friend and the seller: *"And then, in the end, that friend of mine went to get the skates himself, as they were not even for me, I just said that I can keep an eye out for skates of his size and then there happened to be a pair [on offer]."* (P7)

In another case, a participant's partner had a broken computer screen, so she decided to make a request, to which another Kassi user replied: *"Well, he had an old CRT display, an incredibly huge one. A screen he just wanted to get rid of. He said that 'come take it away and don't bring it back'. -- So that's how I got it for Luca, we carried it over to his place, with a car."* (P11) Luca, an exchange student at the time, donated the screen to a neighbor when he returned to his home country. While this last transfer was not organized through Kassi, the participant expressed that successfully recycling the screen constituted a further victory for local exchanges of gifts and favors.

In the third instance, a Kassi user borrowed a mattress from a community member in order to accommodate his brother who was coming for a visit. In the final case, a single individual managed an exchange on behalf of a larger group. A group of housemates used Kassi when they needed rugs for their common room. One of the participants posted a request for the group, with the promise that they could all compensate any donated rugs by baking something in return. Although the entire household needed the rugs, the participant was the one to bring up the issue in Kassi: *"Well, it was posted under my name and, in principle, it was my idea, too, but in a way that 'we are looking for this to our shared household!'"* (P3)

Later on, the abovementioned participant explained how she considered Kassi especially useful for collective causes, such as furnishing and decorating shared spaces, where no one is willing to invest a lot of money or effort but everyone in the group benefits if something matching the need can be found. She stated that if she needed something for her own room, she would most likely purchase it from a store but that she would turn to Kassi for collective purposes: *"But if I wanted a shelf to our common room, I would ask for it in Kassi. The way we decorate our common room together, everything is pretty much how it happens to be, almost everything is second hand and I still think it's cozy."* (P3)

Kassi members sometimes screen and post listings with the intention of finding something that a friend, a significant

other, or a housemate needs. Though almost certainly not intentional, this is another effective way to distance oneself from obligations of reciprocity: When one barter for others, he or she may cognitively restructure the situation in a way that lessens his or her personal connection to the exchange. Such cognitive shifts in framing are an effective way to reduce the magnitude of indebtedness that one might otherwise perceive [18]. Similarly, the third parties who receive benefits may experience less of a personal connection (and therefore less indebtedness), too, since they did not initiate the exchange.

DESIGN IMPLICATIONS

The norm of reciprocity is a core social norm that persists in all forms of exchange, including local online exchange. Given the strong aversion to indebtedness and the various ways that participants handle uneasy feelings of obligation, what can we do as designers and practitioners of online systems to help address it in a real-world context? In light of the outcomes of our analysis of user experiences, attitudes and behaviors discussed above, we identify three broader implications for designers who want to design effective online exchange systems.

Matching Similarity and Status Characteristics

Among Kassi users, we found that an aversion to indebtedness was often accompanied by a strong willingness to contribute by providing some kind of help to others. Indeed, we found that the possibility to help a community member can sometimes be even more rewarding than benefiting from the help or resources of others. Yet, it is not always clear *who* one could contribute to, or *what* one could contribute that would lessen feelings of indebtedness. Combined with principles of group similarity and status from social psychology, our empirical findings illuminate a few ways to encourage positive responses to feelings of indebtedness.

Prior sociological and social psychological research shows that individuals tend to seek favors or assistance from those who are most similar to them (e.g., individuals in similar situations within a given community), even if the assistance is not as valuable as that which could be obtained from someone else [17]. The theoretical and empirical explanation for this effect is that individuals tend to accept support from those “*of a kind they could themselves return on occasion.*” [18]. This generates a straightforward, but significant implication for the design and structure of online exchange systems: designs that facilitate linking or matching individuals based on similarity on a variety of metrics (e.g., socio-economic, needs-based, social affiliation, etc) create an opportunity for individuals to give and receive from those with comparable social status and likeness. Designing systems that make individuals aware of who is in a similar situation to one’s own (with regard to various similarity characteristics) can provide a simple, yet empowering way to guide individuals towards pro-active behaviors when feelings of indebtedness are salient.

Highlighting the Value of being a Recipient

Our participants were quick to note the value that they personally receive from giving goods and favors to others, yet these same individuals often failed to perceive their value in their most frequent and generally common role: a *recipient* of others’ goods and favors. In general, recipients do not recognize that they provide others with rewarding experiences by allowing contributors to be helpful, needed community members. To date, the role of recipient is largely ignored in almost all online exchange systems, perhaps because the incentive to receive benefits is taken for granted. However, our research on users’ experiences clearly shows that in gift and favor exchange, exchange recipients play a critical role for providers of gifts and favors.

There are many design solutions that can address this problem by providing necessary feedback to users about their role as both a contributor *and a recipient*. We invite designers to explore the potential of feedback beyond basic, user-to-user rank/rate reputation systems. Prior work clearly shows that individuals contribute more when they know the unique value of their contribution [2, 30]. Extending this logic further, designers could highlight one’s role as a *recipient* of others’ efforts as a logical next step. By clearly explaining how and why a recipient is important to individual providers (and the community as a whole), such feedback can reduce the sense of imbalance and inequity that leads to strong, negative feelings of indebtedness. For example, one’s user page in a given online exchange system could actively highlight the extended benefits to the community that are created by participation of all types—including the role of exchange recipient.

One of the simplest design choices that can effectively highlight the role and value of recipients more broadly is to actively promote user experiences as a core part of the user interface and home page experience in a given system. Many aforementioned online systems such as Freecycle and Neighborgoods provide examples of user experiences, yet this information is often relegated to areas of the site other than the primary interface (e.g., instructional videos, frequently asked questions, and ‘about’ pages).

Highlighting Exchange Processes and Outcomes

Finally, another important design issue stems from the finding that user experiences of social exchange are often more about process than just outcomes. The flow of communication between providers and recipients, as well as the smoothness of coordination are crucial elements of the entire exchange process.

One clear design consideration comes from our observation of informal tokens of appreciation after an exchange. Formalizing the exchange of tokens of appreciation and/or linking such behavior to one’s online reputation or profile would be antithetical to the spirit of indirect exchange. However, designers could provide a way for recipients of these small gifts to share their experiences in an

anonymous, public fashion through the site. Highlighting this aspect of the exchange process is a way to spread awareness of this type of emergent behavior and to help reduce some of the trepidation that was so common among users.

More broadly, designers should leverage user feedback as a way to accumulate best practices for handling exchanges and for dealing with issues of reciprocity and indebtedness. Passing along (and frequently refreshing) suggestions about best practices through the user interface as users prepare an offer or request is a deceptively simple, yet important way to address these issues. A subtle but critical point is that the emphasis of such feedback should be on the exchange *process* as a whole instead of the specific community member (e.g., reputation metrics). For instance, solicitations for user feedback in local online exchange systems could be framed in terms of ‘sharing one’s exchange experience with the community’ instead of ‘rating one’s exchange partner’.

Whether feedback about the exchange process is positive or negative, it can create a shared benefit by (a) reducing uncertainty and concern among newer community members, and (b) informing all community members about less helpful or even harmful behaviors that hinder successful exchange. Of course, it is sometimes hard to infer norms and codes via the lean channels of computer-mediated systems [34]. Nevertheless, the experiences we documented in our research lead us to believe that showcasing successful *and* less successful examples of exchange processes can help diffuse community norms in an organic way.

CONCLUSION: EMBRACING INDEBTEDNESS IN ONLINE SOCIAL EXCHANGE

Our research documents months (and in some cases slightly less than two years) of user experiences, opinions, and behaviors with the Kassi system. Indebtedness is clearly a negative feeling that was a prominent part of our participants’ experiences during this time, but it would be a mistake to try to ‘design away’ indebtedness. After all, the norm of reciprocity and indebtedness are part of the same social process [9, 10, 16]. Feelings of indebtedness motivate individuals to give something back to the community. The key for designers is to redirect feelings of indebtedness towards positive, participatory outcomes rather than frustration, hesitation, and non-participation.

The overall design goal should not be an eradication of the discomforts of indebtedness in social exchange. Instead, local online exchange systems have an opportunity to channel such feelings into pro-active behaviors of sharing and ongoing community participation. By lessening burdens and highlighting benefits, participants can ‘get over the hump’ of understanding and accepting the indirect nature of reciprocity in generalized exchange. If successful, local communities can potentially use online systems to

reap the benefits of stronger group identities [13] as well as positive affect, trust, and solidarity [34].

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