Main network mechanisms that promote trust in micro finance solidary groups in Brazil.

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Abstract
In this work we aim to unveil the main social network mechanisms in a microfinance program in Brazil. We interviewed 12 merchants in their business in September 2014. They are solidary group members of a bank microfinance program in the Northeast of Brazil. The research was hold in two places. The first was Fortaleza a capital city and an urban environment. The second was a county called Icapuí, located in the semi-arid region in the Northeast seafront. Our findings lead to a number of design implications for developing new financial services and lessons learned for investigating financial behavior of small businesses owners.

Author Keywords
Solidary groups; Finance user research; Finance social networks; finance services

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction
In this paper we present the results of fieldwork aimed at understanding the nature of financial relationships in solidary groups in Brazil. Solidary groups are groups based on shared moral obligations as well as shared interests. (Tsai 2007). Yumus Muhammad introduced this concept to microfinance in the 70’s with the

Figure 1. Semi structured interview - "Breaking the ice".

Grameen Bank in Bangladesh "Group membership not only creates support and protection but also smooths out the erratic behavior patterns of individual members, making each borrower more reliable in the process. Subtle and at times not-so-subtle peer pressure keeps each group member in line with the broader objectives of the credit program. … Because the group approves the loan request of each member, the group assumes moral responsibility for the loan. If any member of the group gets into trouble, the group usually comes forward to help."(Muhammad, 1999). Microfinance institutions use solidary groups as a base to provide alternative loan security allowing people with few or no assets to have access to micro credit and raise themselves out of poverty (Yang 2013).

We interviewed 12 merchants who are members of solidary groups in a microfinance program in Brazil. We present characteristics of three main social network relationships that contribute for the success of the credit loan program. Moreover, our findings lead to three major design implications for developing new micro finance services.

The paper is organized as follow: First, we introduce several user research studies focued on cosumer financial attitudes and behavior. Second, we describe the research design methodology used in our fieldwork. Third, we discuss the three main social networks that merchants are involved in. Fourth we highlight three design implications for developing social micro finance services. Lastly, we present some conclusions and describe some future research.

Research to unveil financial contexts

Several methods have been used to assess end-user financial behavior: observation studies [Kumar 2011] [Taylor 2011] [Diniz 2012], interviews [Mallat 2007] [Morawczynski 2011] [Taylor 2011] and survey data [Kim 2010] [Schiertz 2010] [Chen 2008] [Valcourt 2005]. A set of human centric design practices to unveil financial behavior in the field also can be seen in recent Human computer interaction conferences. [Chipchase et al 2014]; [Vines 2014]; [Vines 2012]; [Kaye 2014]; [Mukherjee 2014]. Methods such as Games are used as a technique for investigating decision-making in economics [Sanfrey 2004] and social decision-making (Marchetti 2011). Other studies explore people's perception of physical forms of payments (e.g. paper money, card and gift certificates) may affect spending decisions [Raghubir 2006] [Raghubir 2008]. Updates and financial incentives are activities that result in positive feedback in crowd funding campaigns [Xu 2014].

For this CSCW workshop, we explore how the social networks of small business owners (i.e. merchants) promote value and trust. We will share our experience investigating financial contexts in Brazil looking at small business merchants practices dealing with money in their everyday lives.

Methodology

The literature review demonstrated that there is a lack of studies trying to understand the nature of financial relationships in microfinanced businesses (e.g., small businesses or merchants). A number of questions are of interest to us in this research. What are the important financial networks of merchants? How do microcredit customers manage, spend, monitor and plan their financial lives? Which kinds of mechanisms promote trust in micro banking communities?

In order to answer those questions, we conducted 12 semi-structured interviews with small business owners in the Northeast Brazil. The interviews took place in their local business. Participants were all members of a bank microfinance program in the Northeast of Brazil. Merchants were owners of a variety of businesses, including a grocery store, clothes store, a car wash, cake bakery and small snack bars. The respondents' age ranged from 27-59, with an average of 44 years old. Only three were not over forty years old. The research was held in two places in September 2014. The first was Fortaleza a capital city and an urban environment. The second was a county called Icapuí, located in the semi-arid region in the Northeast seafront. The semi-structured interviews took approximately 90 minutes. The interviews were audio recorded for future transcriptions. Two researchers were part of the study, one to conduct the interviews and the other to take notes. A local bank employee accompanied the study. Participants signed a consent form explaining the study and asking for permission to take pictures and audio record.

The interviewing session was organized in eight blocks, with main themes and questions to be followed. To start the conversation, the researcher used a mirror "to break the ice" asking – Who is this person here, in the mirror? See (Figure 1). Participants usually smiled and gave us demographic information. With this informal atmosphere, we precede asking about their financial activity (low and high expenses, tracking and manage finances); financial instruments (tracking, bank accounts, technology); financial planning (thinking about future and priorities); savings; payment methods (card, fiat money, bank slips). Those categories were inspired by previous research [Vines 2012]; [Kaye 2014]; [Chipchase et al 2014].]. We decided to add two more categories: solidary microfinance experience and financial logistics. The first was to elicit details about the microfinance context, which was a primary focus in this study. The second was added to understand how the money flows in those environments.

Data transformation was applied in order to count the frequency of the categories that emerged in the data. (Creswell 2009: 218). NVivo software was used to analyze the qualitative data - transcriptions of audio record and important notes taken during the fieldwork.

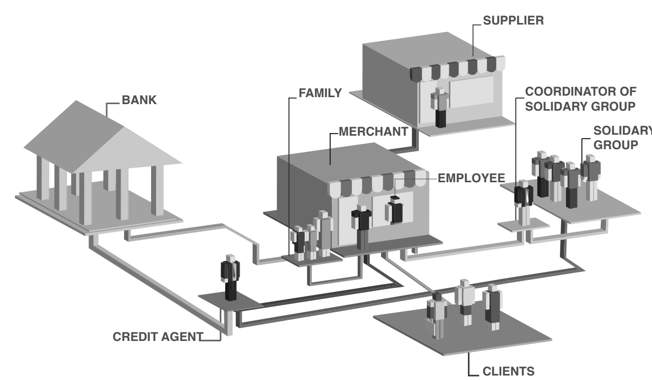

Figure 2. Merchant centered network

Merchant-centered networks

We describe three main social networks of small business owners/merchants: 1 – The Bank Network (including the bank agent); 2 – The Merchant Customer Network; 3 –Solidary group Network (Figure 2).

Other social networks were identified in the study, such as: suppliers, merchant and their clients, merchant's employees and family members. We are not exploring those in this paper due to limited space, but we will discuss them in the workshop presentation.

Merchant and their customers

Quite naturally, the merchants and their customers form an important social network, which is formed with strong social ties. Normally the small business is in the same neighborhood that the merchant and customers live. They meet very often, and depending on the business (e.g., groceries) the customers may pass by everyday. Some merchants that we interviewed buy different amounts of supplies according to the seasons. For example, in June there are regional parties – Festas Juninas – where new dresses are needed, and new sweets and cakes will be required.

For some types of businesses and locations it is an advantage to have more products on display. For example, clothes – "More product, more sales" (Participant 12). In her experience, she has found that while newer inventory will attract the attention of a customer, they are often likely to purchase from older inventory that is nearby. Having more products on display, therefore, results in more sales.

Within the merchant-customer network, there is an important subgroup of customers who buy merchandise using credit from the merchant through a Brazilian form of lending called "fiado." Fiado transactions are common in Brazil [Gonzalez et al. 2013]. Fiado is a credit practice that merchants sell products to a customer based on trust that the customer will repay the loan in the future. The date for repayment of the loan is variable and informal e.g. "Next week, "Next month"; "I will pay it later". Merchants take notes in a notebook to remember the purchase (Figure 3). Our participants had their particular ways to take notes. A woman, cake baker, only takes notes of the delivery day and value, and she said she always remembers the name of the customer by heart. Others take notes of customer names, purchase amounts and compute summary values for new purchases all long the month. As some customers do not pay the total debit in the same day, merchants also deduct the amount paid crossing the value and writing the new customer debt. Merchants are often not pleased to sell their products in this way, because sometimes customers do not pay back their debts. In those cases, merchants have to contact the customers to demand repayment or they cease doing business with them.

It is not easy for the merchants to manage this portfolio of small loans and predict the future cash flow that will result from repayments. The merchants that we interviewed said that they do this to please the clients, for loyalty and friendship. It is always a difficult social situation, when a customer is unable to fully pay for the merchandise. "If a customer wants to buy something here and he does not have enough to pay for it today, he takes the product home. In a Supermarket he cannot do that" (Participant 11). In other situations, merchants do not have enough change, and customers pass by their business the next day or so to take the money back. In comparison, in

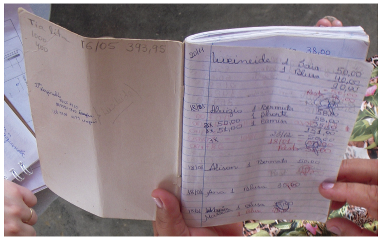
Figure 3. Fiado notebook.

the sea front county – Icapuí– merchants had more "fiado" customers than in Fortaleza, an urban environment. Perhaps, it is due to social ties are stronger in the countryside than in a capital city.

Merchant and Bankers

The merchants we interviewed said that they rarely go to a bank branch (e.g., to withdraw the loan, and sign the microfinance contract renewal. Usually they renew the loans every 4-6 months and the whole group has to go to the brunch to sign it. Some of participants are members for years. For instance, a clothes storeowner (Participant 8) was one of the first program members in Icapuí with 48 renewals. They start with a low value loan. The value can be increased in agreement with the members of solidary group and the bank. The bank has a lower interest rate (1,20% monthly) compared to other credit institutions in Brazil. The microfinance loan for merchants is exclusively to invest in their business inventory. Most of them (eight participants) have an individual loan as well for refurbishing their home for example.

The bank agent is the primary bank contact within the community. He is aware of most of the business in his area and has a good relationship with the microfinance members. This relationship is based on power, respect and integrity. Merchants carefully monitor their financial activities and strive to pay all their bills on time, not only the microfinance loan payment. "If I am not a good person, if I don't pay. He (agent) will replace me". (Participant 12).

Agents are most of the time available by telephone calls and in person. Normally they are responsible for one or two geographic areas. Merchants can also contact them calling the microfinance office. Group meetings usually happen after they sign the contract and near the renew period. Some meetings are in-group and other individually. Agents provide financial education and advice, answer questions, and look for new microfinance members.

Merchant and Solidary group members

As mentioned above, the merchants that we interviewed are all participants in a microfinance program with a bank in the northeast of Brazil. In order to participate in the microfinance program, merchants have to be accepted by a solidarity group and talk to a bank agent, who represents the bank. The groups are small from 3 to 10 members and they should know each other. Family members are accepted if they are not involved in the same business or living in the same house. The group is self-regulating and collectively responsible for the loan, i.e., every member is a guarantor for the rest of the group and the group coordinator is responsible for collecting the payment of all individual loans. The loans are granted individually based on a separate credit analysis (per client) and the amount may vary according to the client's capacity to repay. The repayment term is fixed for the entire group. They renew the loan with the group and the bank, every 4-6 months. In our study, merchants have renewed the loan more than three times. One specially, did 48 renews since she started the program.

There are two ways to become a member of a solidary group: by credit agent invitation or by a request form a friend or acquaintance. A requirement for a current member to invite a new member is based on the morality standards observed in everyday life.

“When I started the credit program was difficult to be part of, so, you find reliable people. You know that the bank sees credibility, right? Credibility for who has behavior credit, right? For people who pays their bills on time. And you don’t want people in your group that in the due date won’t have money to pay for the loan. It’s difficult to predict if you will have the money or not. So, it’s difficult to trust“. (Participant 03).

Groups have a leader, called a coordinator, who receives the credit installments and pay in the bank. In our study, six in twelve participants were coordinators of groups. Only one person, the group coordinator, makes the payment. If someone does not have their installment payment that month, the other members have to pay it for him/her.

“People look for me to participate. I will evaluate if they are responsible people. When I see they are not responsible people I say – ‘My group is full, let’s wait for another opportunity’ – You can’t accept everybody, it’s not bad because when you have a [repayment] due date you need people to pay. I have to pay out of my own pocket. It’s my responsibility”.

Group coordinators have a status in the group, and also in the society. People see them as trustful people. The group members choose coordinators. They keep the group together and have a more frequent communication with the bank agent. They are the ones who motivate others to pay. Most of the coordinators we talked to said that they like their function, and prefer to do it than give this role to another member.

Do you like to be a coordinator? “I do like, because I’m very worried about the due dates. Therefore, if there is another coordinator, I’m going to be worried if he pays on time. I call everybody one or two days before for them to bring the money. I don’t want to delay the payment. They say I’m the only one who knows how to charge people”. (Participant 2)

There is some variability in the amount of social interaction among the solidarity group members. Usually, members only meet in the loan renewal meetings. On the other hand, some members live nearby and sometimes meet informally. “There is a woman in my group who sells pastry (pastel). I go there to buy pastry and I leave the money there (credit loan installment). The others I rarely meet.”(Participant 1).

In other groups they have a more friendly relationship and a sense of responsibility for each other. “In the case of short money, the group helps. They say I’ll have my earnings soon, next Friday. Can you borrow me some money? I can. I usually lend even for neighbors that are members of other groups to complete their credit loan” (Participant 3).

Design implications to develop new finance services

We identified three main implications that might affect the design of new microfinance services based on social networks.

Loyalty- Merchants want to please their customers, letting them to pay later for a good, in exchange for loyalty. “Fiado transactions” are based in social ties.

Trust- we observed that mutual trust among members is necessary for the success of the solidarity group. Trust between merchants and their customers is also critical for practice of fiado loans (i.e., short-term credit) to be viable.

Status - Merchants that coordinate the groups have status in the social network, being recognized as the most responsible and incorruptible in the group.

Conclusion and Further Work

In this paper we described the important relationships in the social networks of small business owners (merchants). We showed some factors that affect those relationships that designers, researchers and practitioners could use to develop microfinance systems. Loyalty, trust, and status are elements that might affect effective adoption of those systems.

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