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Perceptions of Sharing Everyday Purchases

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Human behavior research has shown that spending money on others contributes not only to a higher satisfaction from purchases but also increases personal happiness. To better understand the "social" effects of personal spending, and how satisfaction from a purchase affects sharing it with others, we developed a personal finance logging application that not only allowed users to record their daily expenditures, but to also capture both the social and hedonic aspects of these purchases. We recruited 71 participants to record their purchasing behavior with our app for one month. Using a mixed-methods analysis we (i) computationally identify how overall purchase satisfaction relates to its sharing; and (ii) elicit motivational and experiential factors that drive our participants' sharing of everyday purchases.

Everyday Sharing; Co-Consumption; Purchasing Behavior; Personal Finance; Remote Experience Sampling.

1. INTRODUCTION

People regularly buy a significant number of goods and services. In the UK, for example, weekly household expenditure is averaged at £528.90 in 2016 (UK Office for National Statistic). While many purchases are for immediate consumption and/or daily use, others may see significantly fewer uses and instead end up lying around our homes and garages until another occasion comes up. A plethora of emerging "sharing economy" services (e.g., BlaBlaCar) are using networked digital technologies to optimize the use of those underutilized resources (e.g., vehicles and household items) by sharing them with others (Belk 2014). Sharing such not-in-use purchases not only improves their economic and environmental sustainability, but also helps to create and maintain social ties (Kennedy 2015). In addition, prior work (Dunn et al. 2008) has shown that spending money on others rather than oneself can lead to greater satisfaction from those purchases.

Consumer research (e.g., Belk 2014) distinguishes between *collaborative consumption* (i.e. "sharing economy") and *sharing*. This distinction is made on the grounds of "expectation of compensation", as true sharing does not actually expect compensation. Despite the difference, both practices promote pro-social behavior i.e. trust, mutuality, fairness and openness (John 2017) and imply community-fostering (Kennedy 2015). Furthermore, Belk (2010) defines "sharing in" as an act of inclusion and extension of our self to our nearest members of family and friends, and "sharing out" as an act that involves dividing something between relative strangers (which is where he positions most of the "sharing economy" services).

Following Belk's theoretical framing, we designed a study to explore current practices surrounding the (physical) sharing of everyday purchases, as well as our participants' affective experiences of this. Additionally, we wanted to map how "sharing in" and "sharing out" are represented in everyday consumption. Our research questions are as follows:

(i) What type of everyday purchases have been shared or co-consumed the most?
(ii) How does one's satisfaction of a purchase affect subsequent sharing?
(iii) What motivational factors should user experience designers consider when it comes to sharing everyday purchases?

We developed a personal finance logging app for smartphones that allows one to manually record one's daily purchases, one's satisfaction with those purchase, and any follow-up sharing of the purchased item. We recruited 71 participants to use it continuously within a period of 30 days. In the remainder of this article we briefly summarize related work, describe the study design, outline and discuss our main findings.

2. BACKGROUND

While sharing personal digital information such as files (Voida et al. 2006), collections of images (Miller and Edwards 2007) or music (Voida et al. 2005), as well as details of personal workouts and trainings

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(Epstein et al. 2015) have been extensively covered by prior research, fewer studies in HCI have looked at sharing personal material possessions. The most common examples include vehicles (Raval and Dourish 2016) and apartments (Ikkala and Lampinen 2014). To the best of our knowledge no prior work addressed sharing everyday purchases (i.e., physically, not simply posting the fact on social media).

The term "sharing" describes a wide range of acts and activities. In the context of consumer theory, Belk (2010) describes it as a type of interpersonal interaction and distinguishes the process of sharing from other consumer behaviors, such as gift-giving and reciprocal exchange of goods, by virtue of not requiring reciprocation. Belk uses mothering (i.e., maternal caregiving) and the allocation of resources in a family (i.e., joint ownership) as two key prototypes for sharing. Similarly, Cappellini and Parsons (2012) examine the practices of food consumption within a family and conclude that sharing plays an important role in defining family identity. They conclude that the family meal practice is closer to sharing than gift-giving: it reaffirms a family as a collective unit, rather than a group of individuals. These studies contextualize sharing activities within domestic environment and discuss them within everyday family practices and routines, where we expect the majority of purchase sharing taking place.

The emergence and rapid adoption of social and economic models enabling shared use, known as the sharing economy, have enabled people to coordinate, acquire, distribute, and temporarily use many kinds of shared resources (e.g., housing, fertile land, vehicles, etc.). Popular kinds of commercial sharing services focus on supporting the sharing of rooms and apartments (e.g., Airbnb), rides (Uber), cars (Getaround), and more recently also of household items (Peerby). Several researchers have studied motivations to participate in such sharing economy services (Bellotti et al. 2015; Ikkala and Lampinen 2014). Drawing on Bellotti's findings (2015) on motivations that drives participation, we wanted to understand the motivating factors in sharing everyday purchases and how they relate to sharing other items in the sharing economy.

Lastly, our work is motivated by the emergent trend of HCI research in personal finances (Kaye et al. 2014a), which explores social, technical, and economic aspects around everyday user interactions with money. Kaye and colleagues (2014b) interviewed 14 individuals about their current practices of dealing with personal finances and suggested that often money gets managed not only individually but also for immediate family members (e.g., a spouse/partner, children). They conclude that modern financial software and online services often do not account for such common arrangements. Furthermore, mobile apps and systems for managing personal finance do not include the emotional component that often characterizes people's relationships with their finances. Our work accounts for both: (a) it incorporates emotions and (b) leverages a social component through collecting and reviewing self-reported satisfaction and inquiring whether the sharing or co-consumption occurs for each purchase made throughout a day.

Finally, drawing on a qualitative inquiry of the Bristol Pound (Ferreira et al. 2015), a mobile payment system, which revealed opportunities for making new connection to other people, places, and communities while spending money, we try to quantify how much peoples' everyday spending and consumption are attributed to their social interactions. Last but not least, Dunn et al.'s work (2008) on spending money on others revealed that this promotes happiness. Hence our secondary focus on how satisfaction mediates sharing in everyday purchases and consumption practices.

3. STUDY DESIGN

To build an exploratory account of sharing everyday purchases, we recruited 71 participants (55 female) who used a smartphone daily. The average age of participants was 26.86 years (SD=6.59), most of them live in Western Europe. Participants were recruited via specialized recruitment websites for user studies. Participants needed to log their purchases using a custom-designed application and answer several questions whenever they bought something. Participants were compensated for their participation depending on both how long they took part in the study and how much data they submitted, but not more than the equivalent of £25 for 30 days of participation.

3.1 Data Collection

We developed a personal finance management app (for both Android and iOS) that allowed participants to add information about price, merchant, date, and category of purchase (see Fig. 1a). In addition, participants needed to assign the level of satisfaction for each purchase on 5-point Likert scale: 1 being "very unsatisfied", 5 being "very satisfied" (Fig. 1b). We also asked participants to provide some information whether they were willing to share their purchase with anyone else, and whether it was subsequently shared or co-consumed. A free-form text field allowed participants to indicate positive or negative experiences related to sharing each purchase. Participants could defer rating their satisfaction in case the consumption or sharing did not take place immediately after purchasing. We distributed the application through both the Apple

App Store and Google Play. While we collected data throughout 6 months, each participant had to log their purchases continuously within a period of 30 days only.

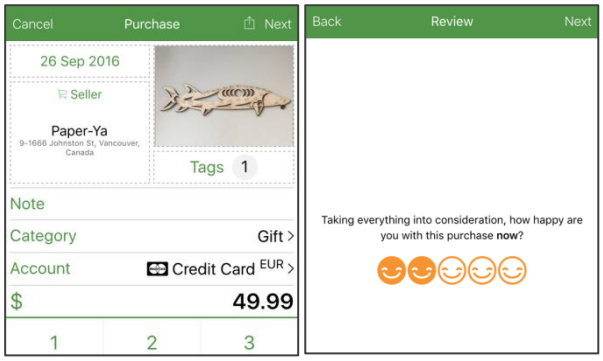


Figure 1: *The app for data collection: (a) top of purchase details screen; (b) purchase review screen.*

3.2 Data Analysis

We employed mixed methodology to analyze the collected data. For numerical data related to purchases and satisfaction from them, we used frequency and regression analysis (Field 2013). For open-ended answers about participants' positive or negative experiences of sharing or co-consuming a purchase, we employed content analysis from grounded theory to count sharing instances (Glaser and Strauss 2009). The unit of analysis was the act of sharing a physical item (e.g., a pair of movie tickets). In addition to that, we engaged open- and axial-coding from thematic analysis (Berg and Lune 2011) to extract emerging motivational factors from participants' quotes.

4. FINDINGS

On average, participants spent £41.4 on 2.2 purchases each day. We collected detailed information from over 1700 transactions for a total sum of £33,000 worth of purchases. We first report on the average frequencies of participants' shared purchases, then we inquire how satisfaction from them affect sharing, and finally we analyze participants' experiential accounts to identify factors that motivated them share their purchases.

4.1 Sharing of Purchases

While a quarter of all purchases were shared (25.4%), participants were potentially willing to share or co-consume as much as 67% of their purchases under some circumstances (these were marked "sharable"). The most shared purchases were related to the "Home" category (31% of all purchases in this category) and miscellaneous spending (38%), which includes vacation lodgings and services. The next-biggest set of shared purchases was related to entertainment and included experiences like movies and events (28%), and food and drinks (28%). The least shared were expenses for transport (13%) and clothes (15%).

Table 1: *Motivational factors of sharing purchases.*

Common theme	Occurrences
Social connection/Relationship	*155*
Sharing food, experience, fun and joy	*91*
Norms and reciprocity	*90*
Split cost/Save money	*33*
Provide help and support	*31*
Sustainability	*19*
Self-development	*12*

4.2 Satisfaction from Sharing

Extending Dunn's (2008) finding that spending money on others (e.g., giving gifts) promotes happiness, we looked at the impact of satisfaction from a purchase on its sharing (or consuming a purchase together with other individuals). We performed binary logistic regression to ascertain the effects of satisfaction and potential "sharability" of a purchase (i.e., whether a participant could share or co-consume a purchase with someone else under some circumstances) on the likelihood that participants share the purchase. The logistic regression model was statistically significant [$\chi^2(2)=352.02$, $p<.001$]. The model explained 25.6% (Nagelkerke R^2) of the variance in sharing purchase and correctly classified 74.6% of the cases. Both predictors, satisfaction from the purchase and its "sharability", were statistically significant [$p<.001$]. Potentially "sharable" purchases were 19.7 times more likely to be shared than those that are used or consumed individually. Increasing satisfaction was associated with an increased likelihood of sharing a purchase [odds ratio=1.42, 95% CI=1.27-1.58]. To put it more simply: a more satisfying purchase has a higher probability to be shared or co-consumed.

4.3 Motivating Factors to Share Purchases

We wanted to understand what motivational factors drove people to share or collaboratively consume everyday purchases. Drawing on Bellotti's motivational framework of participation in the sharing economy (2015), two team members engaged in coding of the open-ended responses relating to our participants' positive or negative sharing experiences. Table 1 presents the motivational factors that emerged from our thematic analysis of our participants' experiential accounts. In most cases (155 instances), sharing something was a way to create and maintain relationships within immediate family or friends:

> It was nice to share food with my family, especially [be]cause my brother in law was there and we don't get to see him that much (P18).

Enjoyment of sharing food and the overall experience of being with friends was the second most frequent category:

> I bought some things from a new store I found, selling local stuff. They had pralines made with aceto, which sounded weird, so trying them out with my roommates sounded like fun. Which it was. I also bought a pumpkin for carving, which really would only be half as fun alone (P34).

Social norms (e.g., gift-giving) and reciprocity (e.g., grocery shopping for a shared household) was also rather frequent among our participants:

> I paid for a friend and myself to climb at a local wall in return for him driving us there. It's always nice to reciprocate [a] favor (P57).

As shown in Table 1, utilitarian, moral, altruistic motives, and personal development were less frequent reasons. P34 gave an example for the last three:

> I [bought groceries and] cooked dinner, then shared it with my flatmate. Another friend texted me if I wanted to meet up, so I invited her over for dinner too. Since my flatmate had worked late and was tired and my other friend was in the middle of moving, it was nice to help both out by cooking for them. What's also positive is that there's still some food left, so I can take it along for lunch tomorrow. I've been trying to bring more food to work, so this makes me feel like I'm reaching a goal.

5. DISCUSSION AND IMPLICATIONS

While acts of sharing are known to carry positive social values (John 2017), our findings suggest that higher satisfaction from purchases could facilitate their sharing or co-consumption. One possible explanation is that participants wanted their friends or family to try things or experiences that they themselves enjoyed. Sharing occurred most often with family members and friends (often in a form of a meal), and was usually seen by our participants as an act of maintaining social connection, supporting relationship, and emphasizing togetherness (Cappellini and Parsons 2012). These findings suggest that sharing everyday purchases resonates with Belk's (2010) notion of "sharing in" – an inclusive process where people share with a social group as a way of strengthening bonds and extending an individual's sense-of-self through other people. While our findings suggest that positive social values of cooperation and participation driven by sharing might benefit our own well-being, it is reasonable to expect that they will also contribute to the development of sustainable communities. However, the motivational factors rooted in social values (e.g., sustainability) and empathy (e.g., provide support to others), albeit important, were less represented in our sample. Finally, in line with Bellotti's (2015) findings on participation in the sharing economy, our participants also aimed for convenience when co-consuming their everyday purchases (e.g., splitting car parking cost). This behavior is described by Belk (2010) as "sharing-out". While these utilitarian motives are dominant in the sharing economy, they were far less present in our sample of sharing everyday purchases.

Our initial enumeration of the motivational factors to share everyday purchases is a first step to inform designers of future services that involve sharing purchases. Based on this initial result, we plan to further develop each purchasing category using qualitative analysis methods. For example, we found several instances of possible negative consequences for co-consuming a purchase, e.g., when it comes to money management. Some of our participants reported that getting money back for a "shared-out" purchase (e.g., a pair of concert tickets) resulted in delayed payment and generated several misunderstandings. We speculate that service designers in personal finance (Kaye et al. 2014b) could account for that type of transactions to facilitate more positive user experiences, e.g., by allowing involved parties to quickly reach mutual understanding and agreement. One strategy may be to integrate automated reminders or send a to-do note to the counterparty related to a purchasing transaction. Similarly, future "social" personal finance apps could also support conversation, helping users to reminisce upon "together moments" with family and friends. Recent work, e.g., of Ferdous et al. (2017) illustrates how interactive technologies can orchestrate the sharing memories during family meals.

Finally, researchers explored the role of online communities (e.g., Ganglbauer et al. 2014) and mobile technologies in supporting food-sharing practices to reduce domestic waste (e.g., Far-Wharton et al. 2014). Conversely, in our study, the role of sharing food was central when it comes to social connection and experience sharing, and rather tangential in the discourse of environmental sustainability. In other words, our participants were largely motivated to share purchases based on their aspirations to maintain social relationships and a sense of community rather their environmental concerns. We plan to conduct an in-depth qualitative inquiry to examine this in more detail.

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