
The Routines and Social Behaviours of Frequent mCommerce Shoppers

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Abstract

Recently, there has been widespread growth of mobile shopping and buying, termed mCommerce. With this comes a need to understand user's routines and social behaviours in mCommerce activities so we can understand how to design for the mobile space. To address this, we conducted a diary and interview study with regular mobile device users to explore their mobile shopping activities. Our results describe a variety of usage patterns including spontaneous purchasing and routine shopping where people gravitate to their mobile device even if a computer is nearby.

Keywords

Mobile computing, shopping, purchasing, commerce

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Design, human factors

Introduction

Historically, most online commerce activities have been based around computers utilizing the Internet as a part of eCommerce. However, we are now seeing a large

uptake of mobile computational devices that expand the ways in which people connect with and obtain information. This has resulted in an increasing number of opportunities for people to purchase items online using smartphones and other mobile devices via mobile web browsers or applications targeted at specific stores—an activity termed as mobile Commerce or mCommerce for short. The growth of mCommerce is noted by many companies.

While there has been a large amount of research on eCommerce there has been comparatively very little that focuses on mCommerce practices, routines, and the needs of typical mobile shoppers. This gap is important as mCommerce is not a simple extension of eCommerce. “mCommerce has its own technological infrastructure, new business models and value chain, and new value for consumers. Hence, it requires new thinking for its dissemination and adoption” [2].

Related Work

Some research on mCommerce shopping has been conducted. O'Hara and Perry [6] conducted a photo diary study, followed up by interviews, exploring why transactional impulses on mobile devices are deferred. Their findings showed that half of deferred transactions could be further supported by the incorporation of cross-medium information transfer strategies such as QR codes—or other bar-scanning or URL shorting concepts [6]. They also found that much deferred transactions resulted because of the "social and collaborative" nature of some purchases and this requiring permission or coordination before the transaction could take place; thus, they suggest incorporating social networks in mCommerce design.

A variety of studies have also looked more generally at mobile device usage. Nylander et al. [3] explored the use of mobile phones and found that they were most often used in the home (31% of the time), in addition to outdoors (23%), in transit (23%), indoors (16%), and at work (8%). Most surprisingly, more than the 50% of their participants used their mobile phones to access the Internet even though they had access to a computer that was close-by [3]. Reasons for this ranged from convenience to laziness to simply preferring to use a mobile phone over a computer [3]. They also found that Internet usage on mobile phones was for situated or general searching (30% of the time), reading news (20%), passing time (19%), checking email (17%), and mCommerce transactions (6%). Our study builds on this to understand where and when mCommerce activities occur.

Researchers have also investigated specific instances of mobile device usage. Using a voicemail diary, Palen et al.[7] explored the mobile phone practices of new adopters. Results showed that people normally started using mobile phones for reasons of safety, business, or to replace a landline phone; however, usage often migrated to unsuspecting things such as constant accessibility and micro-coordination [7]. Together this showed that mobile phones are social devices [7].

Using a survey and 'screenshot' diary study (similar to ours), Karlson et al. [1] explored how users migrate between smartphones and computers when completing workplace tasks. Results showed email activities, reviewing calendar appointments, and making phone calls to be the most common mobile activities with their participants [1]. Participants also found that it was difficult to follow-up (or continue) with uncompleted

tasks at a later point, especially if this was done on a different device or computer [1]. Our study builds on this by showing that mCommerce activities do not typically migrate between devices.

Diary and Interview Study Methodology

We recruited 17 adult participants (9 female, 8 male) who were regular mobile device shoppers (e.g., purchased at least once every two weeks). Participants' ages ranged from 19 to 44 and occupations varied heavily (e.g., social workers, designers, salespeople, teachers, marketers, students). Participants also ranged in terms of their main mobile device.

Our study method consisted of two distinct stages. First, we recognized that mobile device activities can take place at various times and places and it can be difficult to directly observe these activities as a result [1,3,7]. For this reason, participants first kept an electronic diary of their mCommerce activities over a period of three weeks where we asked them to fill out an online form for each of their mCommerce activities. This included both shopping (without purchasing) and buying. The diary form asked participants to describe their activity and their location when it occurred.

Following the three-week diary period, we conducted a semi-structured interview with each participant. The goal of the interview was to expand on the understanding of the activities recorded in each participant's diary, to check the accuracy of entries, and allow participants to voice additional insights.

In total, participants completed 161 diary entries that contained mCommerce activities. All participants had at least one activity and the average was 9.5 entries

across the three-week span (median 9, range 1 to 20). We inductively analyzed all diary entries along with our interview notes using open, axial, and selective coding to draw out the main themes [8] and compare our findings across participants.

Shopping and Purchasing Activities

Participants used their mobile devices for a large variety of mCommerce activities. This was dominated by shopping without purchase, followed by the acquisition of software for their mobile device (e.g., apps), and then the purchase of 'real world' items. Some people performed certain activities more than others, yet we did not notice any broad trends related to specific participant demographics. Thus, our results focus on practices across all participants.

Shopping

Across all participants, 87 of 161 (54%) diary entries were about shopping. By shopping, we mean looking for a particular item at one or more stores (on the mobile device) or comparing prices on an item. In this case, however, there is no purchase. In total, 16 of 17 participants submitted at least one diary entry for just generally shopping for deals, 10 of 161 entries were for clothing, 3 were about looking for a hotel, while the rest shopped for a variety of products such as: housing, accessories, shoes, car insurance, cellphone accessories, toys and pet products. Reasons for not purchasing included: a high price, the item or service was not what they were looking for in terms of location, quality, or they were just browsing for fun and nothing 'caught-their-eye.' Most shopping was done within apps created and published by specific stores (e.g., eBay, Amazon). To a much lesser extent, some participants

would use their mobile device's web browser to shop on a particular company's web page.

Software Downloads

Participants also downloaded a reasonably large amount of software to their mobile devices. In total, 39 of 161 (24%) diary entries were about downloading items on to the device itself. This was dominated by apps (36 of 39).

Item Purchases

28 of 161 (17%) entries related to the actual purchase of a 'real world' item (e.g., not software for the device) from a company. Participants bought a variety of products including 3 instances of movie ticket purchases, 4 instances of food purchases, 2 instances of jewelry purchases and a variety of one-off purchases such as shoes, yoga, flowers, ebooks, books, clothing, and sports event tickets. 17 participants logged in to a previously created account to make a purchase; this included using Amazon and eBay apps, along with apps made by Social Couponing sites and local food stores. The other 11 participants entered their credit card information from scratch into a web browser page for a variety of reasons:

"Because I get points to travel on [the credit card]" - P4
"I looked up if they've apps, unfortunately that don't" - P13

Auctioning and Selling

A small number of activities related to auctioning or selling items on eBay. 5 of 161 (3%) entries were bids on items for sale, and 1 was about selling of an item.

In total, participants had 41 diary entries based on free products and services, 7 were between \$1-\$5, 42 were between \$10-\$30, 20 between \$30-\$100, 20 between

\$100-350 and 8 were \$500 and up. This shows that people predominantly shop for small value items on their mobile devices, but occasionally people do shop for more expensive things. When it came to whether or not people purchases these items, we saw greater than a 76% percent purchase rate for items under \$5. Only 5 of the 25 \$30-\$100 products were purchased or downloaded. On the expensive end, 2 of the \$100-\$350 were purchased or downloaded.

Daily Routines and Social Behaviours

We found that the timing of mobile shopping and purchasing fell into three broad categories: spontaneous, as a habit or routine, or during fixed time intervals based on schedules.

Spontaneous Mobile Shopping.

First, nearly half of our participants (8 of 17) were highly spontaneous in their shopping habits. In these cases, participants' shopping and purchasing activities were a response to their external environment and other activities. This included triggers from activities both on and off their mobile device. For example, participants were already out shopping in person and needed to compare prices on products, they were told that new software updates were available for their device, or they completed certain activities, such as reading a book, which prompted them to shop for and download a new book to read. Because participants carried their mobile device with them nearly all the time and most had constant Internet connectivity, they were able to act on these stimuli in the moment, regardless of their location or time of day.

For example, P9's diary entries included browsing for products based on recommendations from friends (both

in person and via online messages), going on a vacation to Seattle and looking for a tourist pass, and looking up board games after a night of playing games with friends.

Shopping as a Habit or Routine

Just under half of our participants (6 out of 17) were much more routine in their shopping activities. Routines certainly varied across participants, but the fact that shopping activities occurred in a consistent and repeating pattern was somewhat surprising. That is, participants had a specific time and place where they shopped on their mobile device, they looked for a specific type of item or specific stores' items, and the behavior repeated regularly.

Routine shopping was most often reported to occur during public transit rides to or from work or school. In these situations, participants often had 'time to kill' and would shop in these moments of downtime. The mobility of their device and constant Internet connectivity made this possible. For example, 6 of 7 diary entries made by P1 were shopping activities that occurred during the participants' commute from home to work where all occurred within the same two-hour window of time.

For some participants, the routine act of shopping was tied strongly with checking their email, which was also a routine act done at particular times in the day. For example, P8 recorded 8 diary entries, all of which took place while on the train commuting to school in the morning and shortly after checking his email.

Other participants were also triggered to shop based on their routine checking of email but this activity occurred

either at home or work where the timing was typically the same each day. Email triggers ranged from eBay alerts of daily deals to 'one off' store promotions.

Two participants used their mobile devices to shop on eBay, Amazon, and specific interest stores for collectable items on a regular basis from their work or homes. Here they were interested in specific items as opposed to simply 'filling the time.' This illustrates the more targeted nature of some participants' shopping routines. For example, P15 is an avid collector of pens, inks, and flutes and satisfies his interests by frequently browsing eBay for 'good value' items to add to his collections. P10 was remarkably similar to P15 and frequently shopped on his mobile device on eBay (using its app) and specialty stores. Here the interest was in specialty clothing and occurred at his workstation at work (where shopping was done on his mobile device and not the computer at his desk) or at home with the majority of activity happening late at night.

Together, we see several interesting patterns in these results. First, not all participants are restricting themselves to purchasing in the privacy of their own home. This suggests a lack of concern that others might see their shopping activities, in particular, in places of (often) tight quarters such as public transit. Second, we see the strong tie of mCommerce activities to the routine checking of emails from companies as well as friends.

Shopping During Fixed Time Intervals

We also saw that while not necessarily routine, three participants had fixed time intervals when they would shop. That is, they would shop at a certain time, yet they would not do this on a consistent basis and they

were not looking for specific items. These instances were also not spontaneous in nature.

For example, several participants described being at work and having a few spare minutes where they decided to shop online. Their company policy was such that they were not allowed to 'surf' certain websites so, instead, they would use their mobile phone for these shopping activities. The time interval for shopping was during the participants' work hours, but it didn't occur every workday and there was no particular spontaneous trigger for the activity.

Conclusion

We now know that mCommerce activities occur in a variety of locations, including the home, public transit, and, to a lesser extent, at work. This more specifically builds on Nylander et al.'s location classification for mobile device usage [3] and shows that people turn to their mobile devices for shopping even if computers are located close by. This is because a large amount of mCommerce activities relate to purchases for the mobile device itself, but also because people simply have a preference for shopping in this way. Like the consumption of mobile video and video telephony services [4,5], mCommerce activities also occur in public spaces like transit commutes where the act of shopping represents a private activity in a public space. We also have found that shopping activities typically stay on the mobile device with little concern about migrating the activity to other computers or devices; this contrasts Karlson et al.'s [1] findings about email-based activities.

Similar to O'Hara and Perry's results [6], we too saw social collaboration as a major theme in user behavior.

However, in our study, social collaboration was just as much a catalyst to spontaneous purchases as a deterrent [6]. Furthermore, we found no participants partook in mCommerce activities that originated from interruptive marketing efforts via mobile, print or T.V. advertising.

We are continuing to analyze this data to explore additional topics on the routines and social behaviours of frequent mCommerce shoppers.

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