

Influence of Facebook on Purchase Decision Making

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Abstract. People rely on opinions of other individuals or groups when making purchase decisions. This paper describes a system for evaluating the behavioral impact of Facebook on the decision making process. We have developed ThingBook, a prototype Facebook application for creating repositories of things and sharing opinions with friends. The paper describes initial results obtained from an online survey. These results confirm the existing statements from sociologists that people see their friends as the most reliable source of information.

Keywords: Social networks, Social influence, Consumer behavior, Internet of Things

1 Introduction

The concept of social networks was initially introduced by sociologists as personal ties between individuals who share similar interests [5]. Today it is most popular as a terminology for online social activities. The Internet is filled with millions of individuals who are looking to meet other internet users and to gather and share information or experiences on number of topics. With more than 350 million active users [2], Facebook is the number one social networking site at the moment, 400m members in February 2010, its site has received more internet visits than Google [3].

Additionally, the continuous increase of the amount of time people spend online directly affects their behaviour in sharing and interacting [7]. Accordingly, we reason that influence from social networks on individual behaviour may become even more important in the future.

We see strong tendencies how the individual consumer's shopping behaviour may be affected and changed by the emergence of social networks [4]. This is backed by the observation that numerous web-based social communities have allowed consumers to share their personal experiences by writing reviews, commenting and rating others' reviews for many years now. However, it became also clear that consumers are more likely to believe recommendations from people they know and trust, friends and family-members, rather than strangers or recommender systems [8]. This may explain why according to the latest research [1], social networks are driving an increasing volume of traffic to retail sites and may become the entry hub for e-commerce.

In this paper we introduce ThingBook, a prototype Facebook application that allows users to share information and experiences about things among their friends. In

the following sections we are going to present the concept, implementation and initial evaluation. Our goal is to develop an application in order to prove that friends are the most significant influencers, by using an applied technical approach, which confirms the statements of the sociologists mentioned above.

2 Related Work

By definition, social cataloguing applications allow users to create catalogues of things that are somehow of interest to them [6]. Main features related to this concept are sharing and interacting with other users via reviews and ratings, but also having things recommended based on the history of behavioural data. The term applies similarly to online communities which provide interaction among users sharing common interests, regardless of their physical location. This chapter describes some of the online communities supporting the similar idea of creating repositories of things and connecting things to people.

KartMe.com¹ is a social networking site that offers a service to help members “remember and discover what’s hot or interesting, anywhere, at any time”² KartMe.com supports creation of lists called “Karts” where members can store links, favorites and products. Products stored in “Karts” are connected to prices, reviews, and personalized recommendations. It’s also useful for noting and sharing recipes, dresses, home furnishings, or anything that can be found online at disparate websites.

Thinglink.com³ is a cataloguing application oriented towards designers and brands. It supports creation of catalogues and the building of a community of fans around their products. Ulla-Maaria Engeström⁴, one of the owners of this company, explained that Thinglink.com is about defining the relationships people have with things - who made them, who designed them, who manufactured them, who sells them, who owns them, who likes them. She said it is the “social graph of things” and that “every thing has their own social network.”

ThingD.com⁵ is a social cataloguing application. It offers a massive collection of things that are linked together first by users, then by the data known about them and at the end by users’ ThingD.com network. It also provides a discovery tool for new things and collect users’ comments accordingly.

Although these applications support similar concepts of creating collections of things, they lack the basic feature of social networks: the creation of lists of friends who get access to information of friends of friends. Therefore, our approach was to build a Facebook application, since Facebook already provides the required social background.

¹ KartMe.com, social networking site for products, places and links, <http://kartme.com/>

² <http://media.www.harbus.org/media/storage/paper343/news/2009/03/02/Features/Entrepreneur.ProfilesPhil.Michaelson-3655077.shtml>

³ Thinglink.com, cataloging application for designers, <http://www.thinglink.com/>

⁴ http://www.readwriteweb.com/archives/social_networks_for_things.php

⁵ ThingD.com, cataloguing application for things, <http://www.thingd.com/>

LivingSocial⁶ is one of the popular Facebook applications. It represents a social discovery and cataloguing network that allows people to review and share their favourite movies, books, etc. LivingSocial displays opinions of all members of the community, and is oriented toward “My Top 5” ranking on different categories not related with physical world (e.g. TV shows, New Year’s Resolutions, etc.).

The major difference between ThingBook and LivingSocial is that ThingBook is oriented towards the user-thing relationship and is tightly connected with friend lists. Each user can only access profiles and opinions of his friends, and see their comment and ratings on certain products.

3 Concept

When making a purchase decision, social influence plays an important role. Once a consumer has defined a list of required features, he can use those to start searching for the right product. But browsing, searching, and buying a product on E-commerce websites is often a time consuming and frustrating task for consumers. Over 80% of Web shoppers have at some point left E-commerce websites without finding what they want [9]. We already stated in the introduction that people tend to ask for advice of the people they trusts the most, i.e. friends and family members. But those acquaintances may be mostly unavailable or at least out of physical reach. Since Facebook provides ties to our closes friends and can even provide access to their statements and opinions in an asynchronous manner, this metaphor could be used to share product experience even if our friends are offline.

Based on this idea we have built an application, called ThingBook⁷ that represents the link between things, people and social networks. It allows creation of thing repositories, where users adds all the things he is somehow related to. It also contains relations between user’s friends and things, and provides opinions on specific things that he might be interested in.

3.1 Usage scenarios

ThingBook provides the following functionalities to the users:

- Browsing friends’ repositories, to obtain information and opinions about the products.
- Establishing a relationship to a thing by adding a thing to the user’s repository. This relation does not necessary represents ownership, it could also mean that he likes it, has used it in the past, would like to have it, etc.
- Deciding whether to post a new thing event to the user’s wall, thus making the post visible to all of his friends.
- Writing a review on a certain product and commenting on a friends’ post, thus writing an opinion on the relation between a friend and the given thing.

⁶ LivingSocial, <http://apps.facebook.com/livingsocial/>

⁷ <http://apps.facebook.com/thingbook/>

- Notifying a friend about a thing, pointing out to him that this thing might be of interest to him.

Figure 1 shows the “My Things” page of ThingBook application. It contains a list of all things in a user’s repository. For each thing, the user can see the main features including name, image, status and rating (the owner’s as well as the total ThingBook rating). For better visibility, things can be filtered by categories.

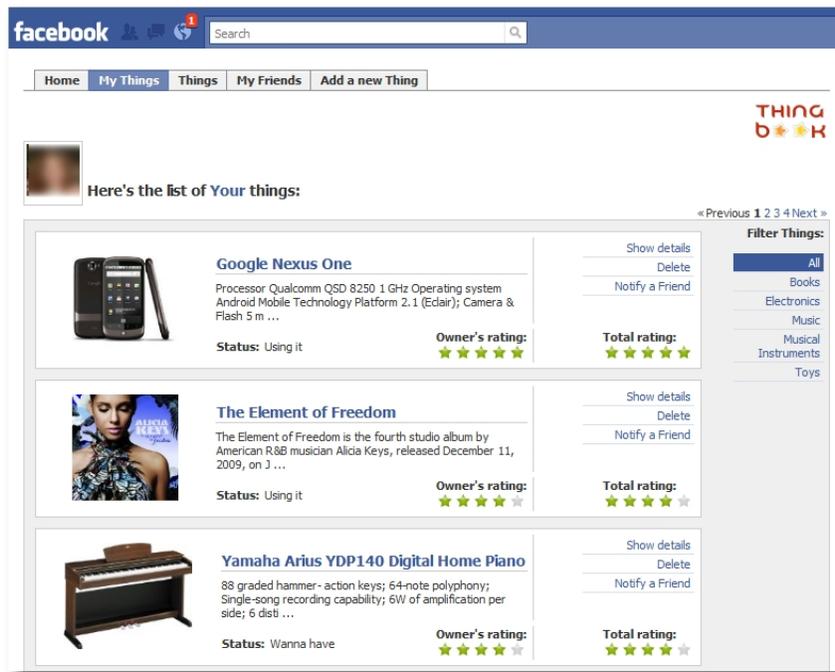


Fig. 1. “My Things” page on ThingBook.

For a detailed view of a thing, a user can click on the thing’s name or image, or select the “Show details” menu option. Figure 2 shows the “thing’s details page” of the ThingBook application. It contains the name of the thing, full description, EAN, user-thing relation (status), owner’s rating, reviews and list of friends that also have a relation to this thing.

When clicking on friend’s image, the user is redirected to a friend’s profile page. This page shows a friend’s top five products, his latest comments and recent activities. A detailed list of all friend’s comments and products is also available. The ThingBook profile page can also be published as a tab on user’s Facebook profile.

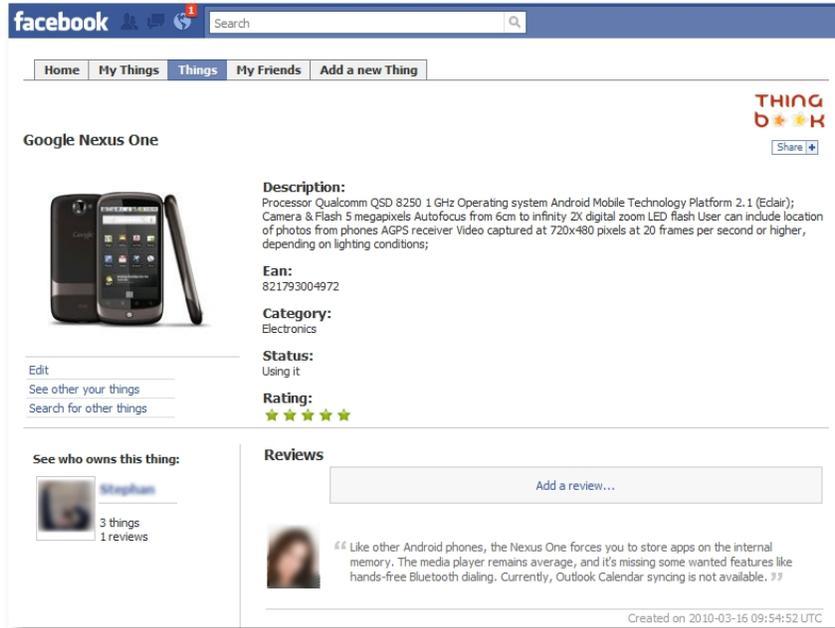


Fig. 2. ThingBook details page.

3.2 Implementation

ThingBook is implemented as a Facebook platform application. It is developed using the web application framework Ruby on Rails and Rails Facebook API. A SQLite database is used for storing of data. Communication between Facebook and ThingBook is based on RESTful interface over HTTP protocol.

3.3 Privacy Issues

The ThingBook prototype does not provide the tools for defining granular privacy settings. ThingBook users can see all things in their friends' repositories even if they have limited profile access. For a better sharing experience the common Facebook privacy settings should be provided, allowing the following levels of visibility for things, comments and ratings:

- Everyone
- Only Friends
- Friends of Friends
- Customized groups.

General privacy settings on Facebook regarding displaying the user’s profile picture, sending messages and user blocking are automatically applied by the Facebook Platform.

4 Evaluation

The first prototype of ThingBook was launched in June 2009. At the time this paper is being written, the Facebook Developer application statistics show a total number of 534 active users and they have added 220 things to their repositories.

Initial evaluation has been done based on a survey integrated within the ThingBook application. The survey was conducted with 33 participants, 26 of them were male and 7 female. The majority of the participants (25) were aged between 18 and 25 years. The rest of the participants belong to the 26-35 age group.

The survey contained a total of 20 questions. We divided the questions into three groups. The first group concerned information about the participant, such as age and gender. The second group of questions concerned the user’s consumer behaviour. And the third group focused on the idea, concept and prototype of ThingBook. Most of the questions were answered with values from: “1 – Totally disagree” to “7 – Totally agree”. In the continuation of this chapter we will focus on the answers on questions regarding the consumer behaviour

Figure 3 presents answers to the question regarding the most common source of information. Results have indicated that friends are the highest rated source of information, compared to blogs, retail stores, e-commerce applications and comparison sites. These results are in line with the existing literature.

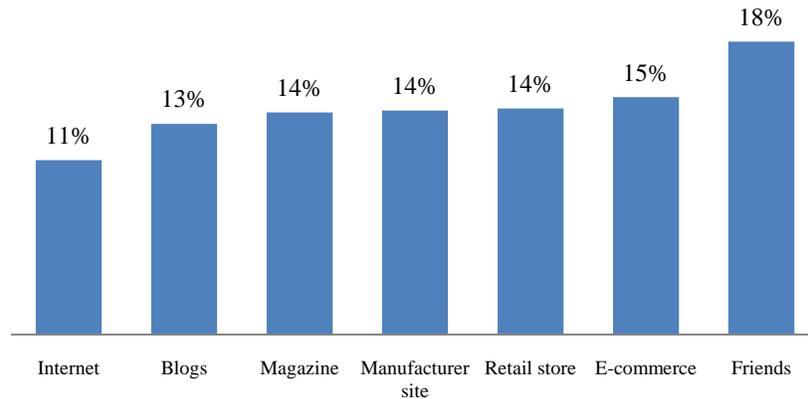


Fig. 3. Sources of information regarding products

Table 1 shows the list of questions concerning the consumer behaviour. The answers to these questions are shown on Figure 4.

Table 1. List of questions regarding consumer behaviour.

#	Question	AVG ⁸	SD ⁹
Q6	The products which my friends own influence my purchase decision.	4.39	1.58
Q7	My friends' opinion about products influences my purchase decision.	4.85	1.48
Q8	I advise my friends during their purchase decisions.	4.97	1.49
Q9	With ThingBook I can show my friends, what I use or have used.	5.76	1.66
Q10	ThingBook helps me to let my friends know my lifestyle.	4.18	1.74
Q13	The product assessments of my friends on are reliable source.	5.42	1.32

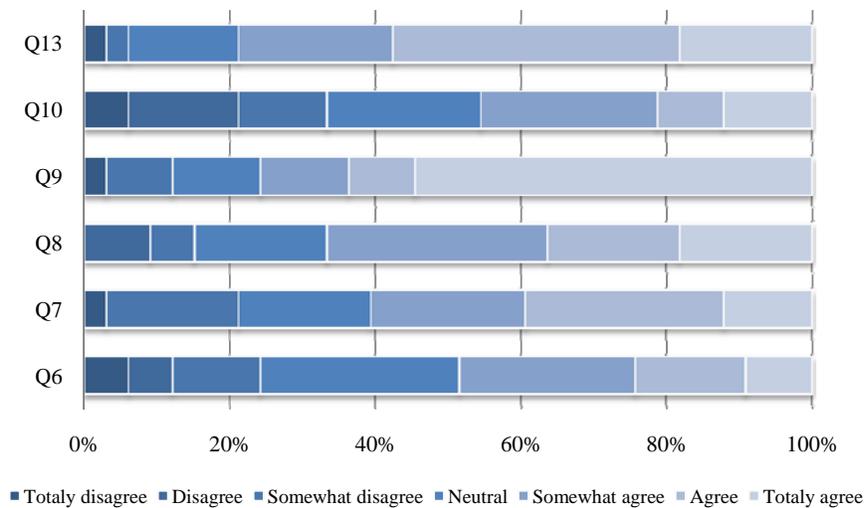


Fig. 4. Numerical results from online survey.

The results indicate that friend's opinion on a product plays a bigger role than whether a friend possesses a product. The majority of the participants advise their friends during the purchase decision making process. The participants agreed that they can use ThingBook to share their product experiences with friends. However, they showed different opinions on the purpose of ThingBook to show their lifestyle.

To obtain more accurate results, additional statistical measurements are planned. These measurements will be based on collecting log data from the ThingBook application. Statistical measurement will be divided into several groups: usage statistics, demographic statistics and social influence statistics. Usage statistics will comprise the total number of users, number of monthly active users, average number of things in repositories, average number of reviews, comments and posts, frequency

⁸ Average value

⁹ Standard deviation

of usage (visits to application, adding a thing, commenting, posting, etc.), most common action, most common user-thing relation, etc. Demographic statistics will include gender, age, language, region, etc. And the most important, social influence, could be automatically measured by average number of friends using the application, time-line for a thing “spreading” among friends, similarity among friends, etc.

5 Discussion and Conclusions

When developing a cataloguing application, the main problem is unique item identification. Currently the implemented solution uses EAN numbers as thing identifiers. However, we cannot rely on the fact that the user will always correctly enter an EAN number or any EAN number at all. ThingBook does not provide a mechanism to avoid these situations. A partial solution for this problem currently used in ThingBook is the integration with Amazon Web Services to fetch a thing’s details and improve the quality of entered data. Still the problem remains when handling products without EAN numbers and recognition of “similar” products (e.g. same product, with different colour has different EAN number). Correct recognition and handling of these products will have a major impact when dealing with comments, reviews and recommendations.

The next step in the development process will be the integration of ThingBook with mobile devices. The idea is based on usage of barcode identification and location-aware APIs for direct upload of products into the ThingBook database at any place and at any time. This could provide richness to the offered features set, where users will be able to publish posts like: “I just bought <product> at Zara Store in <location>”, accompanied with the product image. Figure 5 illustrates demo version of the ThingBook application for iPhone. Location enriched data could also be presented on a map for better visualisation of things distribution.



Fig. 5. iPhone version of ThingBook.

Results have shown that number of users is much larger than the number of added things. Therefore additional means for usage stimulation should be added, i.e. friends’

similarity mechanism, activity grading and ranking. The insight into consumer's product repositories, their interests and habits, creates possibilities for companies to apply these findings into development decision making process and to adjust the marketing process based on demographic statistics.

This paper has described a Facebook application that allows sharing information about products among friends, as a tool for analysing the impact of friends on consumer behaviour. Initial results obtained from the survey have confirmed our expectations, that friends are considered as the most reliable source compared to other sources of information. This complies with previous research done by sociologists, but from technical perspective.

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