First International Workshop on Social Media Engagement (SoME 2011)

Alejandro Jaimes
Yahoo! Research
ajaimes@yahoo-inc.com

Mounia Lalmas
Yahoo! Research
mounia@acm.org

Yana Volkovich
Barcelona Media Innovation Centre
yana.volkovich@barcelonamedia.org

Abstract

The first international workshop on Social Media Engagement[1] was held on March 29, 2011 in conjunction with the International World Wide Web Conference (WWW 2011[2]) in Hyderabad, India. The goal of the workshop was to encourage interdisciplinary discussion and sharing of ideas and research results on social media engagement. A particular focus was on discussing research challenges to devise engagement metrics, to develop methodologies, and to understand how different technical approaches can be used to enhance our understanding of user behavior in social media.

1 Introduction

Over the last two decades the nature of human-computer interaction has transformed. The conceptualisation of the user has changed from being a cog in an organisational machine and a source of errors, to a partner in social interaction and ultimately consumer, and more recently to content creator. The shift in paradigm has been tremendous, particularly on the Web. Within this shift, a strong new focus is the sharing of experiences through social media, with one of the main implications being that traditional user metrics hardly give insights into user behavior or satisfaction. Interest in engagement and how to measure it in these new settings has gained significant momentum, in particular given the success of social media platforms (Facebook, Twitter, FourSquare, Digg, Flickr, Youtube, etc.), and the corresponding implications for advertising and user satisfaction.

Engagement defines the phenomena of being captivated and motivated. Engagement can be measured in terms of a single interactive session or of a more long-term relationship with the social platform across multiple interactions. Thus, social media engagement is not just about how a single interaction unfolds, but about how and why people develop a relationship with a platform or service and integrate it into their lives.

---

[1] http://wwwhome.math.utwente.nl/~volkovichyv/some2011
[2] http://www.www2011india.com/

In a world full of choice where the fleeting attention of the user is a prime resource, it is essential that technology providers, in particular in the context of social media, not just design systems, but rather engaging experiences. The questions then become:

- how do we do this,

and closely related to that,

- how do we assess the experience as being the kind we would like to design?

To answer these questions we need some way of assessing and measuring user engagement in the social media context. We need a framework in which user engagement can be studied, measured and explained, leading to, for example, recommendations and guidelines for user interface and interaction design, as well as having a direct impact on algorithms and functionalities implemented in social media platforms.

We aimed at organizing an interdisciplinary workshop that was especially focused on social media engagement. This was the first time that a workshop focusing specifically on social media engagement was organized. Several related recent events have been organized around social media topics, including search, mining, and machine learning, among others. Related workshops include SOMA (at KDD 2010), WSM (at Multimedia 2009-10), SMUC (at CIKM 2010), and MLSC (at NIPS 2010). None of these previous events, however, focused specifically on social media engagement.

1.1 Topics of interests

The workshop sought papers on the following topics:

- Qualitative and quantitative social engagement models and metrics;
- Methodologies for design and evaluation of engagement;
- Psychological, sociological, and cultural factors in measuring engagement;
- User needs and tasks in social media applications;
- Engagement within and across platforms, e.g. desktop computers, tablets, and smart phones;
- Discovery of engagement patterns based on large-scale social media data analysis and mining;
- Case studies highlighting social media factors that can impact engagement;
- Analysis and mechanisms of incentives for engagement;
- Domain-specific engagement metrics (e.g., gaming, search,advertising, marketing, branding, etc.);
- Data sets and benchmarks suitable for measuring social media engagement;
- Social media and engagement in the developing world.

1.2 Format of the workshop

The workshop was highly interactive, and all attendees contributed. The program included an introductory summary of current challenges, an explanation of the goals of the workshop, five presentations of the results reported in the refereed papers, a keynote-talk on targeting

advertisement, and break-out sessions. One of the outcomes of the workshop was a set of topics that attendees deemed important in determining future research directions on social media engagement. In particular, attendees worked in two groups: engagement metrics, and social media engagement and development. In the following section we present a summary of the workshop.

2 Workshop Summary

2.1 Keynote

The keynote talk entitled "An introduction to Online Targeted Advertising: Principles, Implementation, Controversies" was given by Andrei Broder. Andrei is a Yahoo! Fellow and Vice President for Computational Advertising and also serves as Chief Scientist for Yahoo's Advertising Product Group.

As all comes down to the money, in many cases studies of social engagement strongly coincide with the scientific and technical foundations of the online advertising industry. The industry, which according to E-Marketer, was estimated to achieve $25.8B dollars in revenue in 2010 in US alone, for the first time exceeding print advertising revenue at "only" $22.8B dollars. The central problem of Computational Advertising, an emerging scientific sub-discipline of the online advertising, is to find the "best match" between a given user in a given context and a suitable advertisement. In other words, the central problem of the Computational Advertising is to answer the question how to engage a given user or group of users to participate into an advertising campaign. Depending on the definition of "best match" this problem leads to a variety of massive optimization and search, with complicated constraints.

The focus of Broder's talk was on targeted advertising, a form of personalized advertising whereby advertisers specify the features of their desired audience, either explicitly, by specifying characteristics such as demographics, location, and context, or implicitly by providing examples of their ideal audience. A particular form of targeted advertising is behavioral targeting, where the desired audience is characterized by its past behavior. Broder discussed how targeted advertising fits the optimization framework, presented some of the mechanisms by which targeted and behavioral advertising are implemented, and briefly surveyed the open issues surrounding behavioral advertising, particularly in regards to privacy. The presentation concluded with some insights on the future of personalized advertising and potentially interesting areas of future research.

2.2 Refereed Papers Presentation

There were five refereed papers, which were accepted for presentation. Below we list the presented papers, together with a brief description of each.

- **R. Jain, V. Singh and M. Gao, *Social life networks***
  The authors believe, rightly, that by using the enormous reach of mobile phones equipped with myriads of sensors, the next generation of social networks can be designed not only to connect people with other people, but to connect people with essential life resources. The authors refer to these networks as Social Life Networks and believe that now is

the right time to focus efforts to discover and develop technology and infrastructure to design and build these types of networks.

- **V. Pathak, S. Smaldone and L. Iftode,** *Social farm: making social networks work for profit*
  This paper presents the Social Farm architecture, which aims at encouraging user contribution through the profit motive. The aim here is to leverage the connectivity and trust relationships available in online social networks to create and operate businesses using the programming interface provided by existing on-line social networks. With Social Farm, the tasks of finding partners, implementing the business workflow, managing profits and reputation, and managing the day-to-day operations of the business, become automated. The authors argue that by doing so, this will encourage contribution and engagement by providing an automatic mechanism for transparent and fair distribution of profits to contributors.

- **M. Patel, S. Chaudhary and M. Bhise, Agro-produce Marketing Using Social Networks**
  People can use social network platforms for marketing, buying and selling their products. Indeed, social networks can be used as a mechanism to bring sellers and buyers closer. Microblogging services are part of social network platforms, which allow people to exchange short messages. For example, sellers can tweet regarding product information including links of related photos, videos etc, whereas a buyer can show interest in the product by means of tweets. Microblogs can be parsed and analyzed to generate useful suggestions, e.g. sellers can be informed about potential buyers to get higher profit. Such information can be used to generate classified information to help users to make decisions, e.g. minimum expected price of a crop that sellers expect in a given region. This paper proposes the use of a social network platform like twitter to enable trade interactions among farmers and merchants, provide suggestions and recommendations based on classified summarized information using technologies such databases, RDF/RDF(S) and OWL for better decision making.

- **H. Purohit, Y. Ruan, A. Joshi, S. Parthasarathy and A. Sheth,** *Understanding User-Community Engagement by Multi-faceted Features: A Case Study on Twitter*
  The widespread use of social networking websites in recent years has suggested a need for effective methods to understand the new forms of user engagement, the factors impacting them, and the fundamental reasons for such engagements. By performing exploratory analysis on Twitter to understand the dynamics of user engagement by studying what attracts a user to participate in discussions on a topic, the authors identified various factors which might affect user engagement, ranging from content properties, network topology to user characteristics on the social network. They then used these to predict user joining behavior. Using their framework, People-Content-Network Analysis, they performed experiments on various Twitter user communities formed around topics from diverse domains, with varied social significance, duration and spread. The findings suggest that capabilities of content, user and network features vary greatly, motivating the incorporation of all the factors in user engagement analysis, and hence, a strong need can be felt to study dynamics of user engagement by using their framework. The study also revealed certain correlation between types of event for discussion topics and impact of user engagement factors.

- **L. Morado, D. Anastasiou, C. Exton and I. O'Keeffe,** *Web 2.0 and Localization*

  The more web-based communities multiply in number, type and geographical distribution, the more varied and global their requirements will become. This paper focuses on a selection of Web 2.0 domains and considers how these communities provide both new challenges, and new opportunities, to the software localization community. In addition to discussing how localization requirements are affected by this new content type, two possible solutions to the challenges that Web 2.0 represents for localization are considered, Machine Translation and Social Translation.

2.3 Discussions

A main goal of the workshop was to encourage on-site discussion about the topics related to engagement. The second half of the workshop was thus dedicated to discussions. The organizers proposed the following topics:

- Engagement and Development,
- Metrics,
- Behavior Analysis,
- Economics of Engagement.

"Engagement and Development" and "Metrics" were selected by the audience for intense discussion, and the workshop participants created two groups, each one focused on of the two above topics. Initially, each group was asked to think about the main topics of impact in their corresponding area. Below we present the statements that were produced during the session.

2.3.1 Metrics

Participants of the "Metrics" discussion group first aimed to understand and define types of social activities and participation in social media. The following dimensions of social activities were presented:

- content contribution. There are different types of contributions and content. In particular, there is also metadata, e.g. comments;
- perimeter of circulation;
- endorsement, ratings, etc;
- joining and leaving various social groups. In particular, to answer the questions: what, how, and when?
- temporal patterns, such as longevity, burst, continuous and long engagements;
- popularity and influence;
- cultural dimensions.

The attendances noted that this list is not a final and complete list, and that other social aspects could be possibly considered. The metrics of engagement, therefore, could be defined through a multidimensional approach that takes into account all or almost all above listed dimensions. Another important feature for the metric of engagement is that it should be

a cross-measure between various platforms, meaning that ideally the devised metrics would apply to different sites and services.

Based on defined desirable features the audience proposed a number of research directions. Therefore, in order to model incentives, in particular, there was a proposal to consider techniques from chaos and game theory. For defining models for users of social media known results on group dynamics could be interfered. Finally, in terms of cross-platform capability, more research should be done in order to understand how different devices might affect engagement.

2.3.2   Development

Participants of the "Engagement and Development" discussion group formulated the following challenging questions: how to use social media to focus on social problems? and how to make social media available for the people who generally do not have access to the Internet? According to the group of participants discussing development, the following issues should be addressed:

- geographical aspects;
- spam and vulnerable behavior detection;
- local language support
- multimodal and multicultural aspects
- e-government (laws, public knowledge (e.g. against corruption))
- money engagement
- personalization

Other aspects that need to be considered include the following: trust, management and building of reputation; anonymity; flexible tools; laws and information access; rating (referring to trust as well); access to market; localization; credit systems, and bonuses.

3   Conclusions

The workshop was successful in the sense that lively discussions took place and the questions that were raised, both during the paper presentations and during the discussion sessions highlighted important research issues. For instance, the idea of thinking of the metrics of engagement in terms of dimensions consisting of different activity/content types lends itself to many possibilities that have not been explored. For example,

- do different types of contributions have different engagement value?
- are geographical aspects important in engagement for development?

One of the big challenges identified in the workshop also became quickly apparent in the discussions:

> The meaning of engagement is very much context-dependent and thus thinking of a general definition is difficult at best.

From this perspective, focusing the discussion without a specific property or service in mind was a real challenge. In spite of this, it also became clear that thinking of engagement requires an interdisciplinary approach and different disciplines will have different perspectives and answers on what engagement is and how to measure it. One of the key conclusions might therefore be that in a workshop of this type the discussion sessions need to be a lot longer and perhaps grounded on specific examples with a limited scope. Nonetheless, we think that the outcome and conclusions of each of the groups give us important insights into the types of topics that are relevant for social media engagement research.