

Distributed 'Influence' and the 2011 Canada Games' Social Media Campaign

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ABSTRACT

This position paper presents our preliminary results of the analysis of how 'influence' spreads in the Twitter communication network around the 2011 Canada Games – an annual national sport competition among youth in Canada. We concluded that 'influence' in the 2011 Canada Games Twitter network was not a discrete resource wielded by a single, central actor or actors. Rather, influence appeared here as a distributed function of the network itself: an emergent property more or less aligned with diverse actors' competing and collective goals and interests over time. The paper also makes a number of methodological observations regarding studying social media campaigns.

Categories and Subject Descriptors

H.1.1 [Systems and Information Theory]: Value of information;
C.2.1 [Network Architecture and Design]: Network communications

General Terms

Measurement, Human Factors, Languages, Theory

Keywords

Social Media Campaign, Social Network Analysis, Text Analysis, Canada Games

1. INTRODUCTION

Social Media have been cited as spurring and sustaining 'movements' of all varieties, both on- and offline. Among such technologies, Twitter (a popular 'microblogging' service) is especially interesting for its ability to spread information with astounding speed. But the simple, pervasive existence of this technology at every turn eventually raises some very fundamental questions: what determines the popularity of various social movements and/or internet sensations in the context of social media, and how is that popularity sustained? These questions are at the core of our study on how 'influence' spreads in the Twitter communication network around the 2011 Canada Games – an annual national sport competition among youth in Canada.

Much of the difficulty in understanding influence in social (especially social media) networks, however, has to do with the inability to define influence, and then distinguish it from a number of other factors. For this reason some researchers attempt to narrow in on functional definitions of influence, such as when an actor is simply "being influenced to pass along a particular piece of information" [1]. But they immediately append to this definition the following clause: "there are many reasons why individuals may choose to pass along information other than the

number and identity of the individuals from whom they received it – in particular, the nature of the content itself" [1]. In other words, the *actual content* of a message being exchanged, together with the *nature and/or context of the relationship between exchanging actors* can be just as much, if not more, influential than the originator of that message alone. For these reasons, researchers of social media networks tend to approach 'influence' from a number of perspectives simultaneously, and tend to measure it by a number of different metrics, as well. Our research was very much in line with this trend.

2. METHOD AND RESULTS

Our dataset consisted of a sample of 9,857 Twitter messages (or tweets) about the 2011 Canada Games (messages that contained #2011canadagames hashtag) collected from January 20th (two weeks prior to the actual start of the games) to February 27th, 2011 (the end of Games). Once the data was collected, Netlytic.org, a web system for text analysis and network discovery, was used to discover communication networks among Twitter users in this dataset. For instance, Figure 1 shows how the Canada Games Twitter Communication network looked as of February 22, 2011.

We split and studied the dataset in 6 intervals, and triangulated influence in the network by simultaneously monitoring 1) network centrality, 2) message content, and 3) user identities. Network centrality was measured using the social network analysis metrics of in- and out-degree centrality, which measure how often a user sends or receives messages, respectively. We then performed content analysis by reading the actual tweets related to the most central users. Lastly, we identified social and professional affiliations among the most central users by examining Twitter profiles by their handles at Twitter.com, as well as tracking other web footprints such as personal blogging sites and/or users' profiles in professional networking sites like LinkedIn.

In the end, we found that this network was not "controlled" by one or two influential members, but that it was nonetheless sustained *as a coherent network* as various members alternated structural roles throughout the course of the games. Furthermore, among influential organizations, individuals, and volunteers, influence seemed widely distributed across multiple networks, appealing to multiple actors' interests simultaneously. For example, many individuals and volunteers had a large number of Twitter followers and/or displayed experience/expertise in public relations or social media networking in areas not related to the Games. The content these actors created seemed to bridge sub-networks in its broad appeal and thus allowed these users to utilize resources already in the network by 'folding in' their own resources from other networks.

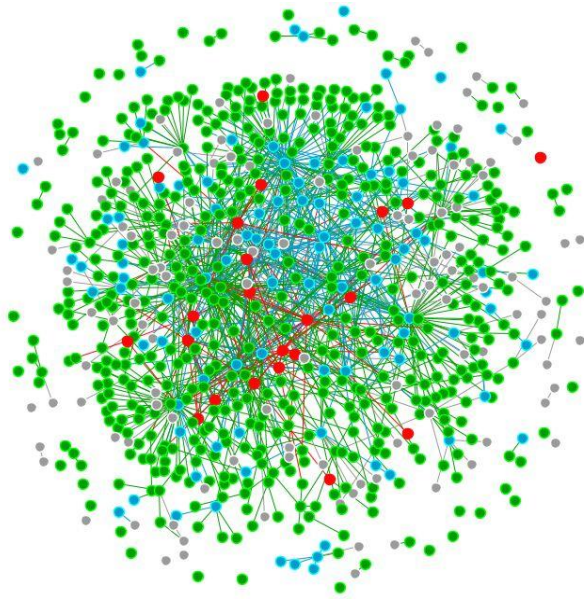


Figure 1. CanadaGames Twitter Communication Network
(as of 22/02/2011).

Note: Volunteers [vol] are colored red, individuals [indiv] are colored green, organizations [org] are colored light blue, and unidentified [unident] users are colored grey.

3. DISCUSSION

There are two methodological considerations worth mentioning regarding the appropriateness of our research methods and their potential in future contexts. First, had we not undertaken a series of network analyses overtime, the emergent character of this

network's organization might have been overlooked. Observing patterns in network growth, actor influence, and popular content as each of these factors shifted from one interval to the next allowed us to understand, on the one hand, how this network's forms, functions, and values were variable over time. On the other hand, we observed how the succession of events on the ground actually reconstituted the network at different intervals, according to the temporal sequence of events – as, for example, when the performance of one provincial team over another correlated with a rise in activity among network actors from that province. By virtue of these findings we deem a combination of realtime and overtime analyses essential to any study of social media networks.

Similar statements might also be made concerning the inclusion of centrality measures, content analysis, and user identification as tools within our research repertoire. Had we not first applied centrality measures to the network in order to identify where aggregations or 'build-ups' of network activity were occurring, insights into the structural composition of the network would have eluded us from the start. Likewise, had we ignored the actual contents of the tweets circulating within those 'build-ups,' we would not have discovered how the varying use-values of content and changing user interests interact with one another to contribute to network influence. Lastly, had users' identities (and attendant social capitals) not been addressed, we would not have begun to understand how the conflation of different social networks (both online and off) contributes both to network composition and network centrality. This latter insight is of particular relevance when developing the design for a future social media campaign.

4. REFERENCES

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