Creating a model of user behavior on social networking sites

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Introduction

Social media / social networking sites (SM/SNS) have reached near ubiquitous levels in our society, leading researchers from multiple fields to question how we might harness the overwhelming adoption of SM/SNS to perform research on human behavior, understand and encourage civic participation, and leverage collective action to aid efforts in large social endeavors (e.g. disaster relief, climate change, etc.). While interest has grown exponentially, theoretical frameworks for the study of user behavior in SM/SNS have not; Brandtzaeg & Heim (2011) argue that "no firm body of empirically-based theoretical knowledge exists about users of SNS" (p. 30).

The scope of existing research is mostly limited to field- and technology-specific approaches to developing a theory of user behavior in SM/SNS. Consequently, the results of most studies are not generalizable beyond the system and users they are studying. This presents a problem of applicability for researchers seeking to describe SM/SNS systems and behavior across multiple contexts as well as a problem of scope for researchers who wish to survey the corpus of work in this area and derive strategies for applying SM/SNS to tackling social endeavors.

My research contributes to our understanding of user behavior in SM/SNS by suggesting a method for further research on user behavior through the creation of a comprehensive functional model that transcends individual systems and contexts and can help us to visualize and, thus, better understand user behavior in SM/SNS.

One-dimensional models

Porter's (2008) funnel model and Neilsen's (2006) 90-9-1 model
- Pyramid-style models predicting that as the level of user contributions increases, the number of users decreases.
- At this point, we no longer need to include a representation of this concept in future models as it is a well-established fact of online communities.
- Roughly accurate in terms of the amount of users in each category, but does not describe interactions between users or user role transition processes.

Preece and Shneiderman's (2009) Reader-to-leader framework
- This model also covers the attenuation of the user base as contribution level increases.
- First well-developed user-role typology
- The process by which one user type is converted to another is implied, but not represented in the model.

Two-dimensional model

Brandtzaeg & Heim's (2011) model
- Differs from the pyramid-style hierarchical model in that it displays a user typology in a non-linear fashion, mapped onto an X-Y axis of mode of participation (Informational — Recreational) and amount of participation (High — Low)
- Extends on Preece and Shneiderman's work by adding a dimension (mode of participation) to a representation of a user-role typology.
- Despite this added dimension, this structural model is still hierarchical in nature. Frequent users, or "Actives" are the "king of the hill" and other user roles fall beneath them.
- Additionally, a model that operates in only two dimensions fails to account for complex interactions such as user-role conversion or collaboration between users.

Functional Models

When I use the term comprehensive functional model, I mean a model that describes in clear terms the systemic complexities of user behavior across SM/SNS platforms. Shoemaker, Tankard, & Lasorsa (2004) differentiate functional models from structural models, noting that structural models are used to describe structural relationships and hierarchies, while functional models show processes and are well suited to describing communication processes. Funcitonal models are also better suited to describing complex processes involving multiple interactions, as opposed to one- or two-dimensional heirarchical models.

While a unified theory describing all user activities and motivations on every type of SM/SNS application may be "elusive" (Preece & Shneiderman, 2009), I assert that working toward a comprehensive model of user behavior in SM/SNS is worthwhile since models provide excellent conceptualizations of complex systems and are tools that help us describe testable relationships in those systems; to reiterate, even if we never arrive at a comprehensive functional model that has universal applications, the work done in modeling will still have great value in terms of understanding user behavior.

One criticism of model building is that it is a distraction from the "primary mission of science, which is to develop definitive causal explanations" (Shoemaker et al., 2004, p. 121). However, models are also useful in terms of organizing data, making predictions, and making measurements for the comparison of systems (Shoemaker et al., 2004). If we view models as a necessary step toward generating a theory of user behavior in SM/SNS and a gateway to leveraging the power of SM/SNS, then each study and subsequent model is a piece of a larger puzzle yet to be assembled.

Four key elements

Contributions

Contributions are the collective goods that users contribute to a site; as in Brandtzaeg and Heim's (2011) two-dimensional model, it is important that we understand the type and amount of goods contributed by different types of users in order to understand how to design systems to foster contribution.
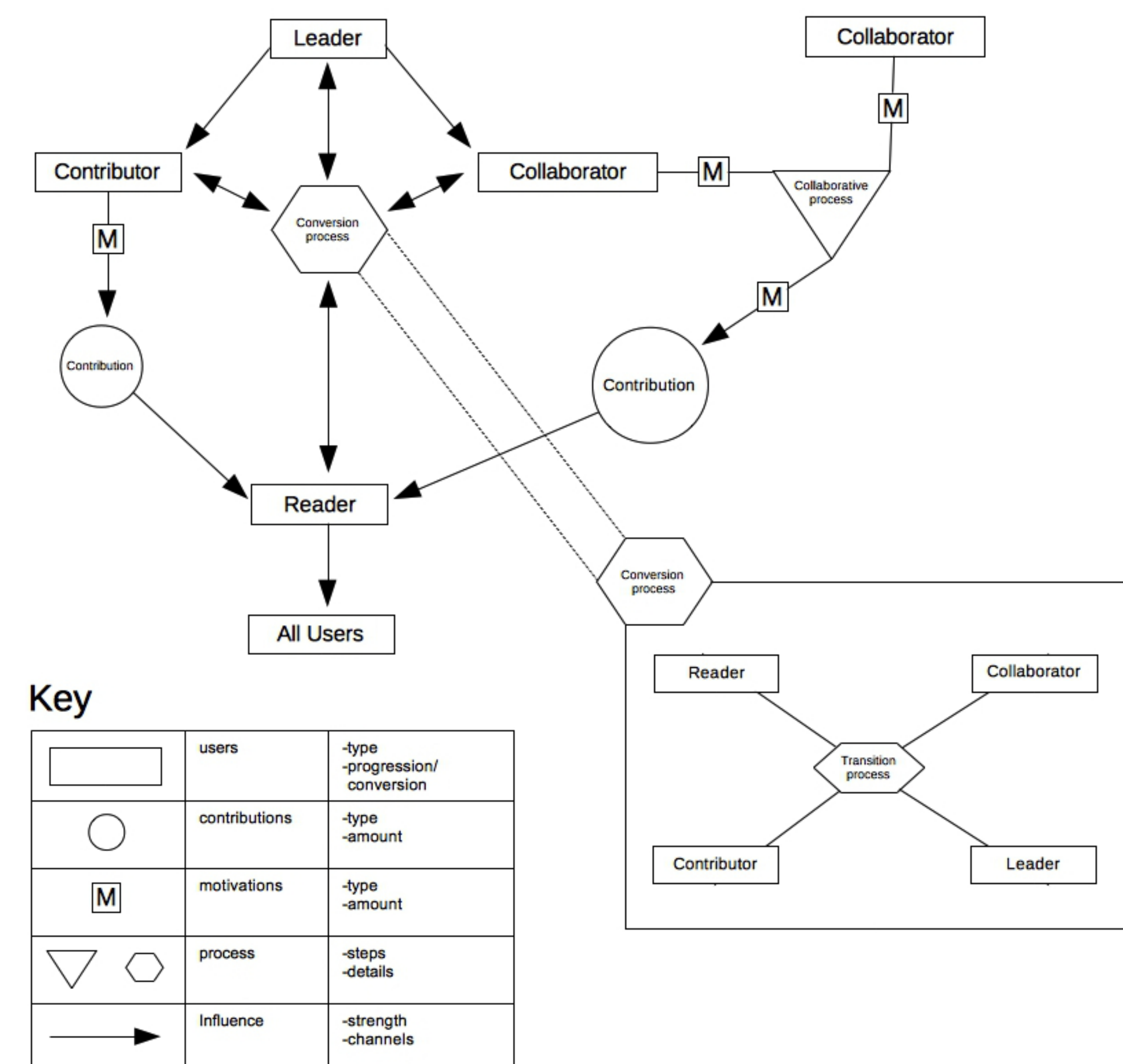
Collaboration

Collaborative processes are hinted at in user-role typologies that include "collaborators" but we do not know nearly enough about the processes involved in collaboration.

Conversion

Conversion is the process by which a user changes roles within a community. For example, a "reader" or "lurker" might register for a site and begin contributing content, thereby becoming a "contributor" or "participant." We recognize this as a process, but know little about how and why users change roles within a system.

Motivation

The very presence of stratified, user-role typologies is indicative of the differing levels and types of motivations that users have for remaining active in a community. Currently, we have little understanding of what motivates users to contribute content.

Key

▭	users	-type -progression/ conversion
◯	contributions	-type -amount
Ⓜ	motivations	-type -amount
▽ ⬡	process	-steps -details
→	influence	-strength -channels

Prototype Functional Model

A functional model depicting the four key elements might look something like the above prototype. This model borrows Preece and Shneiderman's (2009) typology, but places emphasis on the influence that the conversion process has on existing members (and vice versa). The insert emphasizes the need for understanding the steps comprising the transition to a new user role.

The contribution aspect of this model highlights motivational questions (picture the M figures in the graph representing pertinent social science models) as well as the need for understanding the collaborative process. The key on the bottom left contains a column with other areas of interest for researchers.

In prototyping a model that includes representations of these four areas, it is clear that such a model would be complex and requires a great deal of research to empirically validate connections between users and processes. At the same time, models such as this help us to understand, visualize, and test complex relationships, which can have wide-ranging implications in future research. Because my prototype model includes space for paths to contribution, motivations of users, collaborative processes, and user typologies and user conversion processes, I assert that it gives a more holistic picture of how users interact within SM/SNS systems.

Moving forward, an area that I am currently researching in my dissertation is the concept of motivation as it applies to practitioners using SM/SNS at Non-governmental Organizations.

Thank you for your interest. Please feel free to contact me with any questions.

References

Brandtzaeg, P. & Heim, J. (2011). A typology of social networking sites users. *International Journal of Web Based Communities*, 7(1), pp. 28-51.

Nielsen, J. (2006). Participation Inequality: Encouraging More Users to Contribute. From: http://www.useit.com/alertbox/participation_inequality.html

Porter, J. (2008). *Designing for the Social Web*. Berkley, CA: New Riders.

Preece, J., & Shneiderman (2009). The Reader-to-Leader Framework: Motivating Technology-Mediated Social Participation. *AIS Transactions on Human-Computer Interaction*, 1(1), pp. 13-32.

Shoemaker, P., Tankard, J., & Lasorsa, D. (2004). *How to Build Social Science Theories*. Thousand Oaks, CA: Sage.