Replicating and Extending a Facebook Uses & Gratifications Study: Five Years Later

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Abstract

Social media change rapidly: new technological features become available and new communication practices emerge at a seemingly ever-accelerating pace. These dynamics raise questions about the validity of applying findings from past research to understand current systems. This paper explores this issue by a 2012 replication and extension of a prominent 2007 Uses and Gratifications (U&G) study on Facebook. The current study effectively built on the previous work by employing the same questionnaire items to measure

and determine gratifications for using Facebook. Reassuringly, there was a high degree of similarity. However, an open-ended question that allowed participants to expand on the suggested set of gratifications yielded a large number of suggestions, indicating that a more comprehensive U&G study on Facebook may identify novel motivations for use, reflecting the increased scale, reach, and functionality of the site. The original study was also extended with the collection of empirical, numerical data derived from the Facebook API describing detailed Facebook usage and personal network structure. Motivations, challenges, successes and limitations of the replication and its extension are discussed.

Author Keywords

Replication, Uses and Gratifications; social network sites; social networks; Facebook; privacy; computer-mediated communication.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction

Social Network Sites (SNSs) exhibit wide popularity, high diffusion and an increasing number of features. Specifically, Facebook, which currently holds a prime

position among SNSs, has a continuously evolving feature set and one billion monthly active users [4]. Given this diversity, an effective way of understanding Facebook is by exploring motives for using the service via theoretical frameworks such as Uses and Gratifications (U&G) [3, 7].

U&G is a theoretical framework for studying motives and outcomes – fundamentally, the "how" and "why" - of media use [3]. A typical U&G study employs a survey instrument (or occasionally interviews [8] or focus groups [2, 10]) for the collection of all relevant data. However, researchers have argued that more data-driven methods for the collection of U&G data can enhance the analytical power of the approach [7]. Apart from enabling the collection of a much larger set of data, the benefits of a data-centric study that follows a computational approach to measuring Facebook use would include freedom from issues such as recall bias [1], interviewer effects [6], and other sources of measurement error that may accompany survey research (see [5]), and assure the collection of accurate measures of users' activity, broken down by specific Facebook features. In fact, as a theoretical framework, U&G does not mandate that any particular empirical methods be used and, therefore, the inclusion of computationally captured data in the U&G framework of analysis is a viable option [7].

In our forthcoming CHI 2013 paper [9] we have aimed at expanding the analytic framework of U&G theory to include *network* antecedents, as well as a more comprehensive and accurate measure of Facebook *usage*. In addition, we expanded the methodological scope of U&G by combining a typical survey tool with data captured using the Facebook API. In doing so, we

built upon the results of a highly-cited Facebook U&G study by Joinson [3] conducted in 2007. Our study was designed so that it is not "yet another U&G study", but purposely and explicitly builds on the findings of Joinson to the extent that it can be considered a replication and extension of that work. This paper presents an experience report based on this replication and extension.

The Original Study

In July 2007, Facebook had recently moved outside the US-academic environment and had 30 million signed users. In his paper, Joinson employed a two-stage approach to studying uses and gratifications.

In the first stage, 137 Facebook users were asked to generate words or phrases to describe how they used Facebook, and what they enjoyed about their use. The questions used for this are shown in the sidebar.

These phrases were coded into 46 items, which were completed by 241 Facebook users in stage 2. In particular, participants were asked to rate, using a 7-point Likert scale, the 46 uses and gratifications derived from stage 1 using the metric, "How important are the following uses of Facebook to you personally?". The scale was anchored at 1 (very unimportant) and 7 (very important). Participants also completed an item related to their use of Facebook privacy settings, specifically if they had changed the default settings, and if so, the degree to which they had made them more private or more open.

Factor analysis identified seven unique uses and gratifications: *social connection, shared identities, photographs, content, social investigation, social*

network surfing and *status updating*. Of the 46 items used in the factor analysis, 4 did not load on any of the factors and 14 did not meet factor purity criteria and were discarded, thus leaving a total of 28 items to describe the factors. User demographics, site visit patterns and the use of privacy settings were associated with different uses and gratifications.

Our Study and How it Compares

The goal of our study was two-fold. First, to combine the established framework of U&G theory with detailed usage and network data captured from an online social network service. Second, considering the dynamic and evolving nature of Facebook and the continuous introduction of new features, we aimed at investigating the extent to which the uses and gratifications identified in the 2007 study stand the test of time. For both goals, a direct comparison with the results of the previous study was deemed desirable and it was decided to build on those results instead of starting a U&G study from scratch. However, we were not explicitly interested in replicating the study as faithfully as possible (e.g., for validating the results), but simply using the same factors in our analysis because we considered that the two-stage process that was employed ensured accuracy and comprehensiveness of the identified items. Thus, we skipped the first stage of Joinson's study and instead utilized the 28 items he originally identified in a replication and extension of the second part.

In our study, participants were recruited with a request to complete an online survey. Recruiting was done differently that in Joinson's study, with approximately 1/3 of participants being recruited through posts on social network sites, 1/3 through posts to online

forums, mailing lists and online study repositories, and 1/3 through a Facebook ad campaign. Participants had to explicitly click a link to login with their Facebook credentials and access the survey, which is an equivalent action to installing a Facebook application. This combination of recruitment methods led to a sample that was more diverse in terms of demographic and geographic distribution, compared to Joinson's and to similar studies that typically take place within universities and study students. Since motives for Facebook use will likely vary substantially across cultures, ages, and educational backgrounds, the diversity of the sample used in this work may better match the traditionally exploratory nature of U&G studies. However, we should acknowledge a higher self-selection bias in our sample, since participants had to login with their Facebook credentials. On the other hand, this same process may have discouraged spurious participants (e.g., careless, dishonest, or mischievous web surfers). The size of our sample (208 participants) is comparable to Joinson's.

After logging in, participants were directed to an online survey capturing demographics and presenting 28 questions regarding their gratifications from Facebook, corresponding to the items identified by Joinson. Two questions examining attitudes towards privacy similar to Joinson's were also employed. Finally, participants were given the opportunity to expand on the suggested set of gratifications by answering an open-ended question that asked "Are there any other ways (not mentioned above) that you use Facebook for?".

In the meantime, the Facebook API was used to access a range of usage information for each participant. This included 11 variables, such as number of status

updates made, likes given, check-ins made, and groups joined. In addition, the participant's Facebook friendship network was also collected enabling the calculation of 8 personal network metrics, such as size, density, and number of connected components.

An exploratory factor analysis was conducted on the 28 items, yielding seven factors, corresponding to motives for Facebook use, which are similar to those identified by Joinson. The differences between the factors identified in the two studies are in five items that did not load clearly, and the reinterpretation of the factor "Status updates" as "Newsfeed" to better reflect its constituent questions. In addition, a single item was moved to another factor.

Furthermore, the responses to the question "Are there any other ways (not mentioned above) that you use Facebook for?" yielded answers that suggest the inclusion of some new items to future studies, reflecting the dynamic and evolving nature of Facebook and the continuous introduction of new features. The most notable of these suggestions are shown in the sidebar. It is worth noting that some of these items were identified in the first stage of Joinson's study as well, but were discarded in the second stage due to not meeting factor purity criteria. Many others, however, are new reflecting new functionality in the service.

Extending the Study
The rest of our study followed a slightly different approach to the original. In Joinson's study, as happens in a typical U&G study, after the gratifications are gathered, the analysis examines the effect of the social/psychological antecedents and gratifications on the uses. However, since this analysis is purely

correlational, it is methodologically sound to reverse the directionality of analysis and attempt to predict the gratifications from the variables describing antecedents and uses, which is the approach adopted in our work. So, a series of multiple regressions were run with the seven motives (i.e., factor scores) of Facebook use as outcome variables, the Facebook usage metrics and network metrics as predictor variables, and the demographic variables as controls. Results showed that all three variable types in this expanded U&G frame of analysis (covering social antecedents, usage metrics, and personal network metrics) effectively predicted motives and highlighted interesting behaviors.

Two additional multiple regressions were run with the factor scores of the users as predictor variables and the answers to the two questions regarding privacy as outcomes. This aimed at further illustrating the power of this extended framework, by exploring the intricate nature of privacy in social media and drawing relationships between privacy attitudes (and acts) and measures of use and network structure.

Discussion on Replication
The results of U&G studies are typically reported in a way that facilitates replication; the data collection is clearly described and all the factors, items, and their loadings are reported. However, we are not aware of another U&G study that has been replicated (in social media, at least). In our case, there was no ambiguity about what happened in the first study and there was no need to contact the original author. Replicating the first stage of the original study might have produced some interesting results and possibly better highlighted the evolution in Facebook the past five years. However, doing this seemed out of the overall scope of our study

and could possibly lead to an uneven publication. The replication of the study was straightforward, but the extension required a bit more work, as more data were required. The differences in the sampling method and the data collection by the Facebook API had both advantages and disadvantages over the original study. Neither study can claim that its sample can adequately generalize to the Facebook population, but for different reasons each.

Conclusions

This paper presented an experience report based on this replication and extension of a U&G study on Facebook 5 years later. Our study effectively built on the results of a previous U&G study, by employing the items identified in the previous study to determine gratifications. The gratifications identified were very similar to those in the previous study, although it is not clear if it was expected since the same items were used for the exploratory factor analysis. However, an open-ended question that gave participants the opportunity to expand on the suggested set of gratifications yielded a large set of suggestions, hinting that a more comprehensive current U&G study on Facebook could identify new uses and gratifications, reflecting the evolution of the service the last few years. The original study was extended with the collection of a range of computationally collected data from the Facebook API covering Facebook usage and personal metrics, that effectively leverage prior research as a platform from which to expand the traditional U&G framework of analysis.

Acknowledgements

References

[1]   Brewer, D. Forgetting in the recall-based elicitation of personal and social networks. *Social Networks 22*, (2000), 29–43.

[2]   Dunne, Á., Lawlor, M.-A., and Rowley, J. Young people's use of online social networking sites – a uses and gratifications perspective. *Journal of Research in Interactive Marketing 4*, 1 (2010), 46-58.

[3]   Joinson, A. "Looking at", "looking up" or "keeping up with" people?: Motives and use of Facebook. In *Proc. CHI 2008*, ACM (2008), 1027-1036.

[4]   Key Facts - Facebook Newsroom. http://newsroom.fb.com/Key-Facts. (Retrieved 13 January 2013).

[5]   Lewis, K., Kaufman, J., Gonzalez, M., Wimmer, A., and Christakis, N. Tastes, ties, and time: A new social network dataset using Facebook.com. *Social Networks 30*, 4 (2008), 330-342.

[6]   Paik, A. and Sanchagrin, K. Social Isolation in America: An Artifact (July 5, 2012). *Available at SSRN: http://ssrn.com/abstract=2101146*, (2012).

[7]   Papacharissi, Z. Uses and Gratifications. In M. Salwen and D. Stacks, eds., *An Integrated Approach to Communication Theory and Research*. Lawrence Erlbaum, 2008, 137-152.

[8]   Quan-Haase, A. and Young, a. L. Uses and Gratifications of Social Media: A Comparison of Facebook and Instant Messaging. *Bulletin of Science, Technology & Society 30*, 5 (2010), 350-361.

[9]   Spiliotopoulos, T., and Oakley, I. Understanding Motivations for Facebook Use: Usage Metrics, Network Structure, and Privacy. In *Proc. CHI 2013,* ACM (2013).

[10] Urista, M.A., Dong, Q., and Day, K.D. Explaining Why Young Adults Use MySpace and Facebook Through Uses and Gratifications Theory. *Human Communication 12*, 2 (2009), 215–229.