

Campus vs. Facebook: When Offline Communities Meet Online

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1. Introduction

Online communities have experienced exponential growth in recent years. For example, it was estimated that YouTube had more than 40 million registered users by 2006 who were sharing 45 terabytes of videos (Gomes 2006), and that Facebook was signing up about 5 millions new users a week during early months of 2009 (Hempel 2009) despite the economy downturn. Evidence from research and practice has shown the diverse and profound impact that online communities have for both individuals and businesses (Howe 2008, Hempel 2009). Individuals may use online communities for information discovery, friendship development, job search, and social support (Ridings and Gefen 2004, Boyd and Ellison 2007), whereas businesses may use them for project development, knowledge sharing platforms, or service channels (Lee and Cole 2003).

There has been a growing body of literature on online communities. The literature centers on the theme of member behaviors, for instance, member's experiences, activities and behaviors (Butler et al. 2001), the nature and roles of policies and rules in online knowledge sharing communities (Butler et al. 2008), motivations to participate (e.g., Ridings and Gefen 2004), benefits from participation (Cummings et al. 2002), and member retention (Wang 2007). The research settings used in these studies include Usenet groups (Wang 2007), Wiki groups (Butler et al. 2008), and discussion forums (Ridings and Gefen 2004). A common practice for these settings is that the participants use screen names that only exist in the online community and they typically do not know each other in the real world. A new form of online community is increasingly being used such as the LinkedIn and the Facebook, in which participants use their real name and many of them have interactions both online and offline. A question then arises: when online participants know each other's real identity, how would their offline interaction (i.e., real world interaction) impact their participation behavior in online communities? Little research, to our best knowledge, has studied this topic. The paucity of such research points to our contribution to the literature.

In this paper, using data about one hundred American Universities from the Facebook as they existed in June 2007, we test a number of hypotheses on the extent to which the interaction in offline community facilitates the use of online community. In particular, we test the impact of the offline communities, the size, the computing resources, and the geographical location of a university on their students' use of the Facebook. The single-institutional networks within the Facebook provide us with a well-controlled research setting. First, all registered users use their real name and a university affiliated email address. Second, all registered users have opportunities to interact with each other offline, e.g., through classes, fraternities, or club/house activities.

2. Hypothesis

Grounded in social network theory (Cook 1992) and built upon the growing literature on online community, we develop the following hypotheses.

H1: Greater number of offline communities is associated with greater participation in the online communities.

H2: Larger size of offline communities is associated with greater participation of the online communities.

H3: Access to greater computing resources in offline communities is associated with greater participation in the online communities.

H4: More geographically isolated offline communities have greater participation in the online communities.

3. Methodology

The data we used came from two sources: the Facebook website and the U.S. News and World Reports. The source data from the Facebook include demographic information associated with each Facebook user account for the selected 100 American universities, among which, the information on majors/minors, dormitory/house, and their friend connections are used in our study. The source data from the U.S. News and World Reports include information about the offline communities associated with these 100 universities. Hence, the unit of analysis is university. We use the following regression to test our hypothesis:

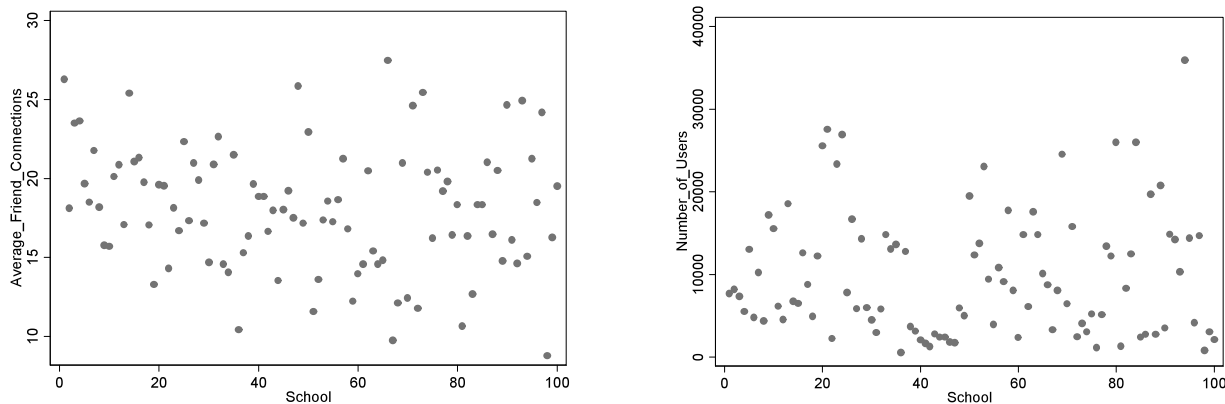
$$FB\ Use = \beta_0 + \beta_1 OFFCOM + \beta_2 COMPU + \beta_3 OFFSIZE + \beta_4 OFFGEO + \sum_1^n \lambda_i CONTROLS_i + \varepsilon,$$

where FB Use is the extent of Facebook use; OFFCOM is the number of offline communities; COMPU is the extent of computing resources deployed; OFFSIZE is the size of offline communities; OFFGEO is the geographical location of the offline communities; and finally, CONTROLS are a vector of control variables.

4. Preliminary Results and Future Research

Descriptive analysis shows that the extent of Facebook use across these universities varies greatly. For example, as shown in the Figure 1, the average of friend connections ranges from 9 to 27, whereas the total number of users from 553 to 35,917. Preliminary results from the regressions are very promising. For instance, we found the average number of friend connections, a measure of Facebook use, is positively associated the number of majors, a measure for the number of offline community, lending support to H1.

Figure 1: The Extent of Facebook Use



We are in the process of collecting data from the U.S. News and World Report on information about the offline communities of these universities. The data will allow us to further operationalize the number, size, and geographical location of the offline community, thereby fully testing our hypotheses. We plan to present the full results at the conference in May.

5. Statistical Challenges

Our data and analysis include a number of statistical challenges. First, the large size of the data poses challenges for us. We need to find an appropriate level of unit analysis so that online and offline data can be comparable and statistical power can be preserved. Second, in estimating our proposed models, we carefully include many control variables, such as financial resources, private vs. public university, etc., to rule out any possible confounding effect. Third, since the count nature of the dependent variable, we use negative binomial regression, instead of ordinary least squares regression, to estimate our model.

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