

Student Life on the Facebook

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Over the course of the last semester, I have been analyzing the behavior of UNC-Chapel Hill students in social network communities. In case you're not quite sure what social network communities (SNC's) are, they are services like MySpace, Friendster, Orkut and Facebook. I am particularly interested in Facebook, primarily because it is so heavily used on campus. In a previous study¹, I found that 88 percent of freshmen on the UNC campus had active Facebook accounts. As one might imagine, any service that reaches 88 percent of our freshmen is worth trying to understand, so I devised a system to sample the Facebook on one week increments. In this report, I'll explore some of my findings, share interesting data and trends, and provide some of my personal opinion on this Facebook phenomenon.

I hope that this post will be of use to students, faculty and administrators, as well as the general public as they attempt to understand the Facebook particularly, and SNC's more generally. As with any new phenomenon that affects our life, we have many questions and search for answers; I hope to help get a discussion rolling. In the sense that this post may help at-stake participants better understand the service and its uses, I hope that it is beneficial to all.

¹ <http://chimprawk.blogspot.com/2005/10/freshman-facebook-zeitgeist.html>

First, a word about my methodology. For each week, all students that self-identified as undergraduates, class of 2009, were sampled. This means their profiles were inspected, and data elements were analyzed. There is no way to "prove" that the students who self-identity as freshmen are actually freshmen, so the data is limited in this sense. Second, it should be noted that when I talk about the behavior of "freshmen", I am referring to the behavior of freshmen in the Facebook. I will refer to my sample as "freshmen", but I make no claim of knowledge of freshmen behavior outside the Facebook context.

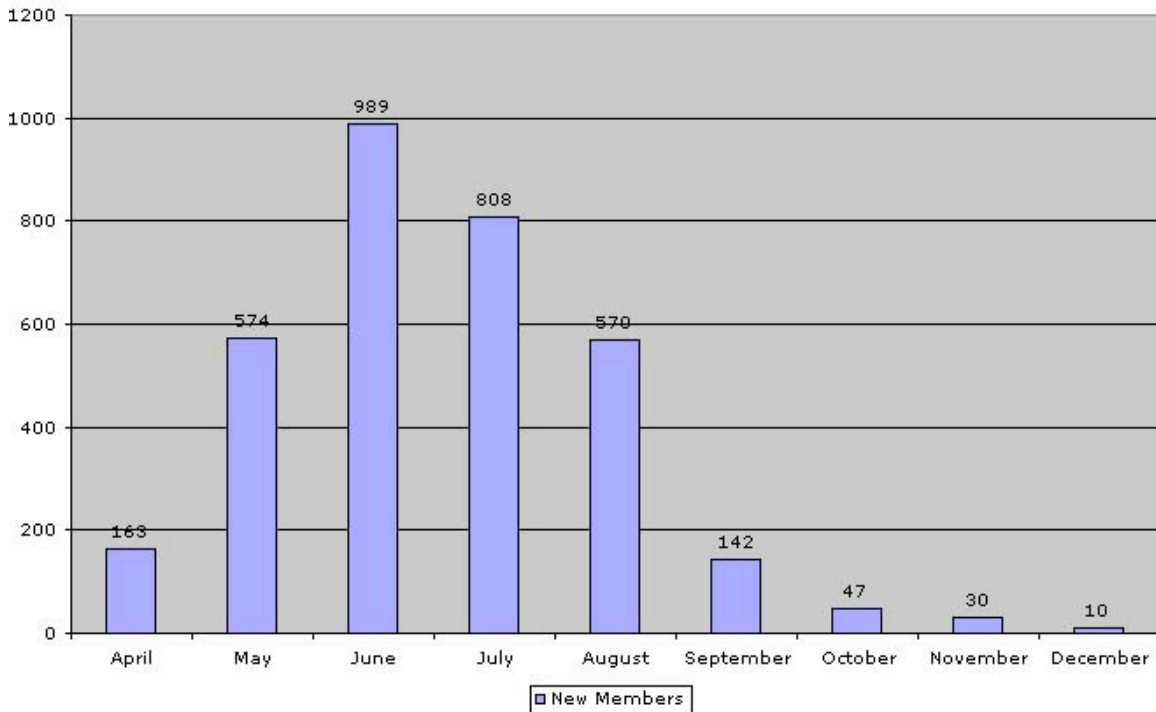
Update - The margin of error if these findings were to be generalized to all freshmen at the university, would be as follows: the first week of the semester is +/- .74%, and at the last week is +/- .54%)

Additionally, as with any large scale sample, there may be data imperfections due to technical difficulties encountered during the sampling process. However, I feel confident that any data imperfections would be covered under a reasonable margin of error. I must also state that while the Facebook's terms of service prohibit the copying of data from the Facebook to a third-party, I am claiming fair use of the aggregate data that you will see here. Other than "adoption" data, which is well-known already, none of the data here deals with the Facebook, only with how students use it. It is my goal to understand how students share information in SNC's, and the Facebook provides my vector.

To begin, we will look at adoption trends in the Facebook. One of the thing that surprised me is that on the first day of school, 3193 freshmen reportedly had an account.

This was over 85% of the entire freshman class, and many had been using the Facebook for many months. As it turns out, the months of June and July represent the greatest months of Facebook account creation.

By-Month Analysis of Freshman Facebook Account Creation

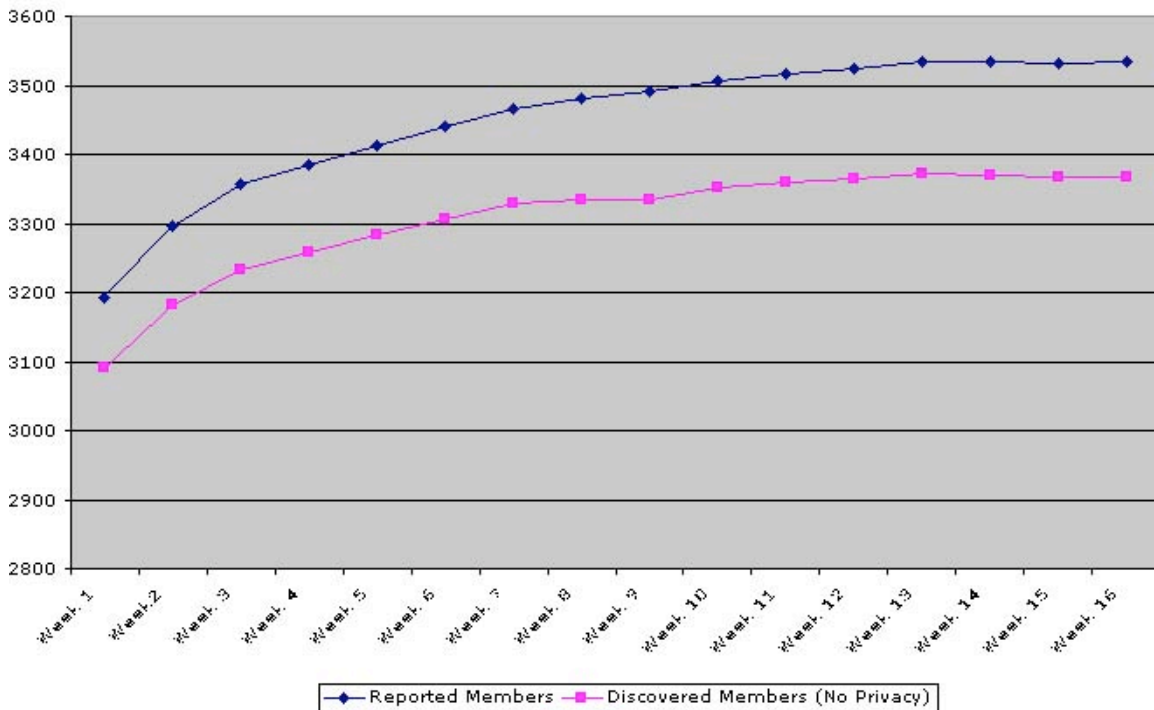


If we were to turn this data into a logistic S-curve, we would see a very characteristic adoption curve. To sign up with the Facebook, one needs a university email address to log in. When I compared my new account data to the dates of UNC's orientations (held mainly during the months of June and July), I saw strong, direct correlations between orientation and account creation. Generally, the two days following orientation would represent a 200-500% percent increase of average daily account creation for the month. It became obvious that many students learned of the Facebook at orientation, most likely virally through friends, though it is also quite possible they learned of the service through

semi-official means such as orientation leaders. Due to this, the students joined the site early, and were already comfortable users when school started.

Next, we will look at how use of the Facebook grew over the course of the semester. As I previously stated, on the first day of classes, 85% of freshmen had a Facebook account. Over the course of the semester, that number grew until over 94% of freshmen had a Facebook account. In the chart, we will look at how that trend, as well as examining the use of privacy in the Facebook.

Freshman Facebook Participation, Fall Semester 2005

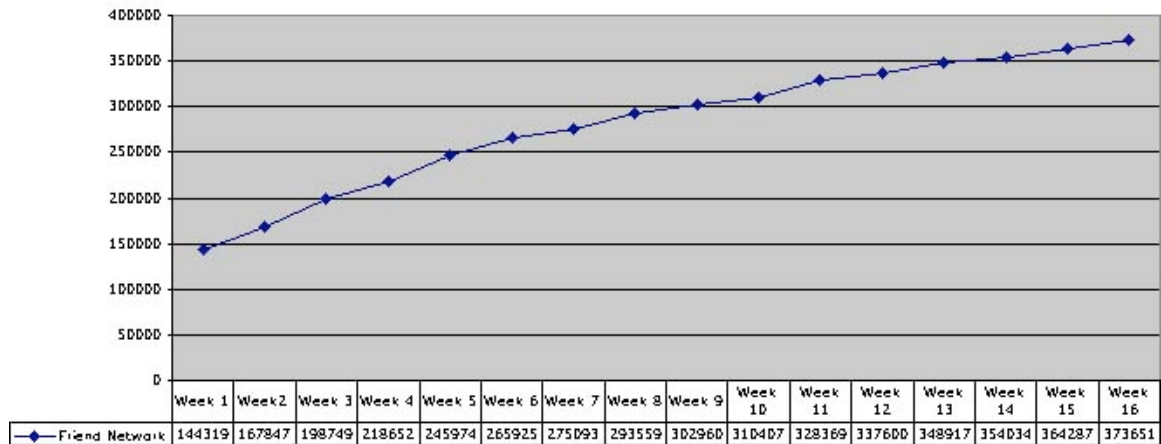


The blue line represents total accounts, and the pink line reflects total accounts that are not private, meaning anyone with a UNC Facebook account can view that profile. As the

semester passed, students protecting their profile grew from 3.2% to 4.75%. It should be noted that these total account numbers represent a revision upward from my previous blog posting; the methodology has been revised in this analysis and is correct.

While the actual number of nodes (the freshmen) in the network did not grow substantially over the course of the semester, the number of edges (friendship connections) in the network did expand remarkably. As the freshmen made friends over the course of the semester, their social network size grew from 144,319 to 373,651 connections. The average number of friends a freshman on the Facebook had on day one was 46, and at the end of the semester, he or she had 111 friends. This might give us a picture of how many friends a freshman might make the first semester of college: 65.

The Social Network Expansion of Freshmen



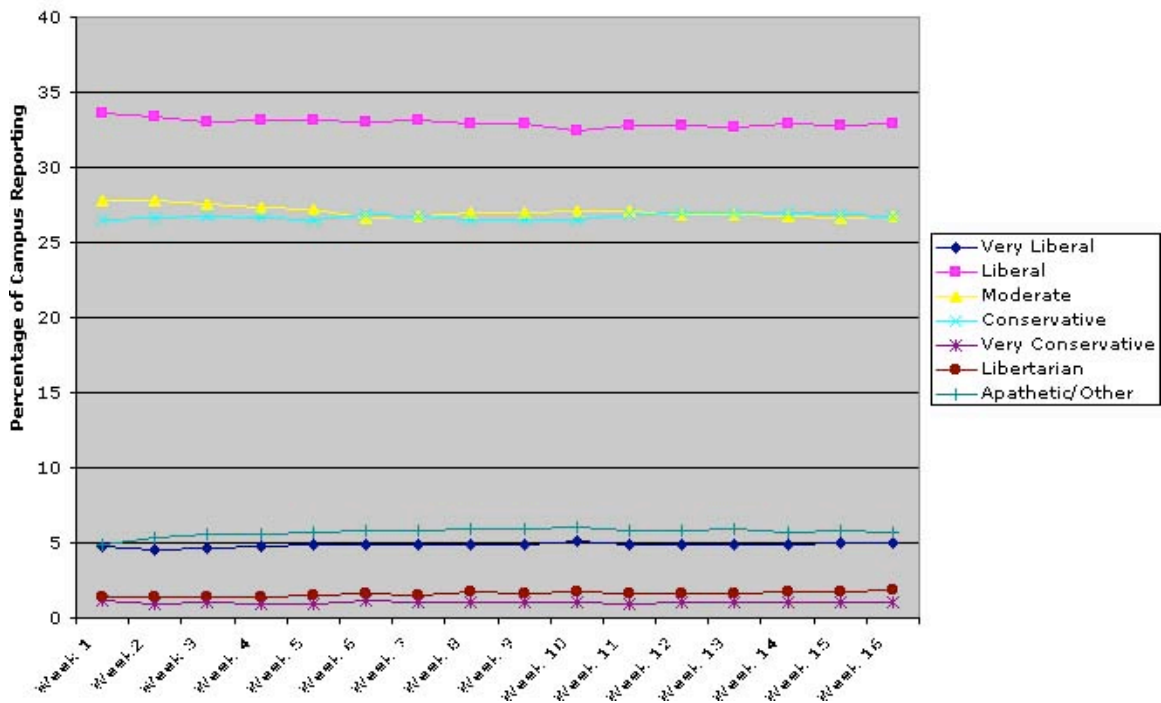
Of course, these 65 new friends can make an impact on the lives of freshmen. As the freshmen seek to stake out their identities, do they change dramatically over the course of the semester? The Facebook allows users to list their political orientation, which serves

as, in my opinion, a very strong indicator of identity. One can orient an entire social experience around the philosophy of politics.

We all know that freshmen change dramatically in their first semester at college.

However, I felt it might be interesting to see if they shift their political orientation in their first semester. Does college make Liberals even more Liberal? Does college make Conservatives more Liberal? These are spectrum questions, of course, and we all shift as we learn, but as it turns out, freshmen do not shift their political orientation during their first semester at college.

Freshman Political Orientation, Moving Ratio, Fall 2005

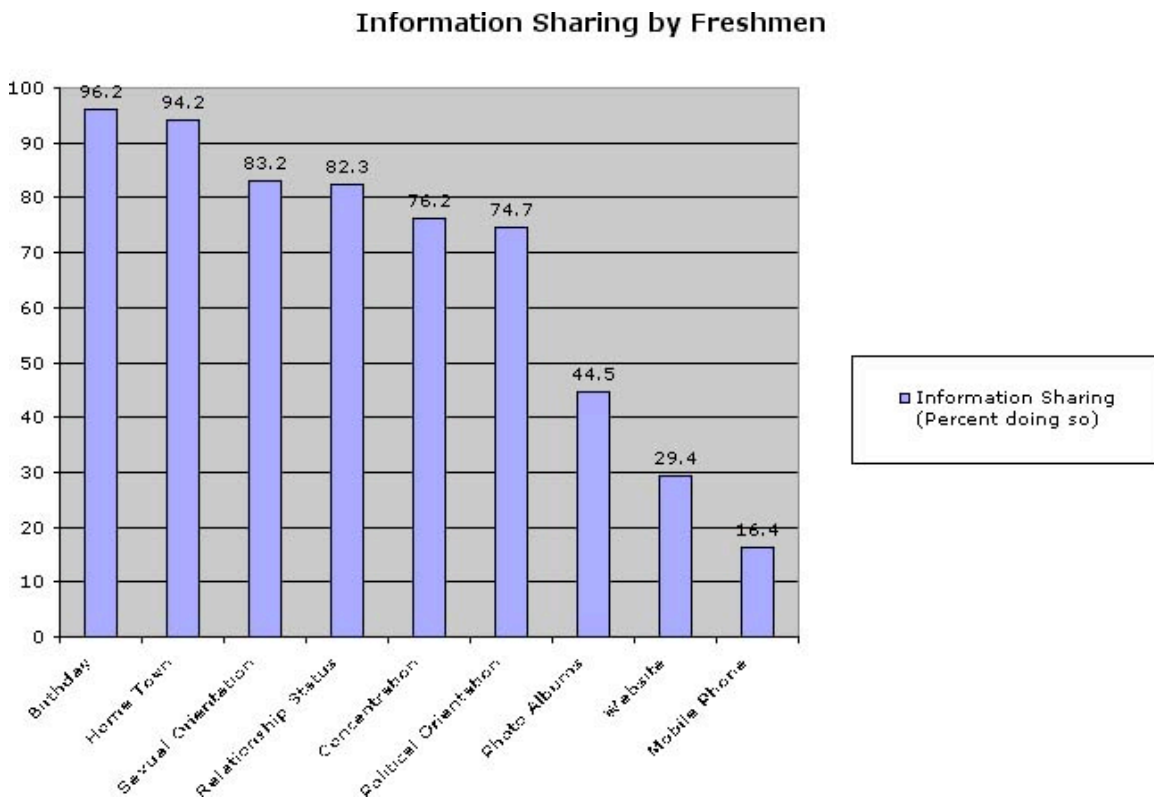


In the graph above, the political orientation of campus is presented as a moving ratio. As you can see, over the course of the semester, the number of students identifying as Liberal decreases, and the number of students identifying as Conservative increases. This must be qualified, though. In the table below, which breaks out the exact percentages, you'll see that the movement is quite marginal. (*Update* - The number of freshmen who report a political orientation are a subset of all freshmen who use facebook; the margin of error at the first week of the study is +/- 1.04, and at the end of the semester is +/- .98. The margin of error if these findings were to be generalized to all freshmen at the university, would be as follows: the first week of the semester is +/- 1.28%, and at the last week is +/- 1.12%.)

Political Orientation	Campus Share, First Week	Campus Share, Last Week
Very Liberal	4.75%	5.0%
Liberal	33.58%	32.91%
Moderate	27.77%	26.78%
Conservative	26.46%	26.74%
Very Conservative	1.14%	.99%
Libertarian	1.39%	1.83%
Apathetic/Other	4.89%	5.73%

It should also be noted that this data has severe limitations. It does not actually reflect individual changes - if two students switch political identity from opposing parties, they cancel each other out in this estimate. This chart would only catch mass trends on campus (a liberalization, etc). I plan to explore this data in more detail later in this report, and in additional, follow-on postings.

In a previous study, I analyzed how much information students shared in SNC's². I extended this study to see how much information the students were sharing in the Facebook. Certain things, like name, school email, join and last update date are almost always shown. But what about optional identity information?



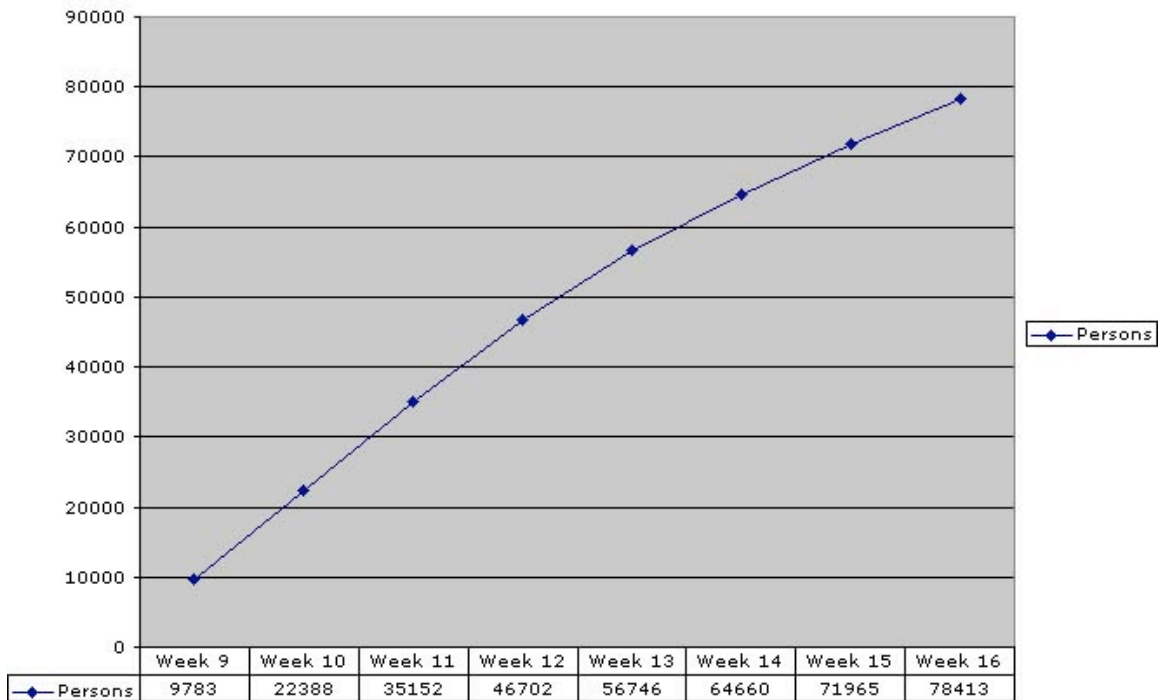
In this graph, we see the percentage of freshmen sharing identity elements that I felt were interesting. It amazes me how much potentially sensitive information is openly shared. For example, you can find out the birthday, hometown, sexual orientation (indicated through a field labeled "interested in"), relationship status and political orientation of 3/4

² http://ibiblio.org/fred/pubs/stutzman_pub4.pdf

or more of all students. Of course, there is no guarantee that any of this information is truthful - but in the eyes of employers or people who don't know you well, does that matter?

On the previous graph, you will also see Photo Albums - a handy and extremely well-done feature added by the Facebook towards the end of the semester. Nearly 45 percent of freshmen have Facebook photo albums, an adoption trend I find interesting. What was very interesting is that the Facebook allows you to tag your photos with the names of other people in the photos, and that allows your photo gallery to include not just pictures by you, but pictures of you by other people. In the following chart, the total number of persons shown in Facebook pictures is graphed. Please note, this is not a tally of all pictures, but of all pictures and tags. In just 8 weeks, the total number exploded from 9,783 to 78,413 - almost a nine-fold increase in volume, or an average of 23 pictures/tags a person!

Persons Represented in Facebook Photos (Introduced Week 8)



As you see the trends, it becomes evident that Facebook is a very important part of a freshman's life. To that extent, I found that nearly 50% of all freshmen had updated their account in the last week, proving the service to be extremely sticky. Extending that time period to two weeks, greater than 67% of freshman had updated their profiles in that time period. The wall, which allows students to post public messages to each other, has 202,879 public messages to freshmen - or almost 60 per individual. Without question, the Facebook is an important resource for the freshmen, and it is used extremely often.

I'll conclude this report by indulging myself with some political demographic analysis. As we've seen, the Facebook allows students the ability to classify themselves by political orientation. I thought it might be neat to place the Liberal and Conservative bloc's next to each other, to see what I could find out.

The first thing I did was compare friend network sizes. I wanted to see who had more friends - liberals or conservatives. As it turns out, freshmen who are liberal have an average of 115.4 friends, while freshmen who are conservative have an average of 117.6 friends. The conservatives, it appears, are better at making friends than liberals by a 2.2 person margin!

Finally, I looked at some of the "favorites" of liberal and conservative freshmen. Facebook allows users the ability to list their favorite things - movies, music and books. I decided to compare the right and the left, so I conducted a little one-time pulse-like analysis of the student favorites. The results are below.

Favorite Books

Rank	Liberal	Conservative
1	Harry Potter	Bible
2	Catcher in the Rye	Harry Potter
3	The Great Gatsby	The Great Gatsby
4	1984	To Kill a Mockingbird
5	To Kill a Mockingbird	Da Vinci Code
6	Da Vinci Code	Pride and Prejudice
7	Pride and Prejudice	Angels and Demons
8	Siddhartha	Catcher in the Rye
9	The Giver	The Notebook
10	Angels and Demons	Lord of the Rings

Favorite Movies

Rank	Liberal	Conservative
1	Garden State	The Notebook
2	Fight Club	Anchorman
3	Donnie Darko	Wedding Crashers
4	Anchorman	Old School
5	Office Space	Gladiator
6	The Notebook	Dumb and Dumber
7	Wedding Crashers	Finding Nemo
8	Love Actually	Dirty Dancing
9	Pulp Fiction	Zoolander
10	Eternal Sunshine...	How to Lose a Guy...

Favorite Music

Rank	Liberal	Conservative
1	Coldplay	Jack Johnson
2	Jack Johnson	Coldplay
3	The Beatles	Rascal Flatts
4	The Killers	Kenny Chesney
5	Dave Matthews	The Killers
6	Bob Marley	Oar
7	The Shins	John Mayer
8	Modest Mouse	James Taylor
9	Radiohead	Switchfoot
10	Green Day	Tim McGraw

Take from these what you will - the inbound data is not especially clean, and while I made every effort (and they look right, for the most part), there's no guarantee these rankings are anywhere near perfect. What struck me about this data is that, for the most part, politics may divide us bitterly - but we actually share more in common than we might realize.

I'll conclude this report by reminding the reader that this data represents only a very small demographic - one class of freshmen at one university in the Southeastern United States. This is not meant to be a representative study of anything more than the exact population it studied, though I wouldn't be surprised if the use trends are similar across many, many campuses. It is important to note that this is not a study of the Facebook per se, but how students use social network services. It does not represent the Facebook as a part, or a whole. This is primarily a series of snapshots in time, showing how our freshmen use this extraordinarily successful service; hopefully from it the reader will take away a broader understanding.

Fred Stutzman is the author of this report, and a Ph.D. student at the School of Information and Library Science at UNC-Chapel Hill. His research interests involve social software and networks, personal identity management, information retrieval and knowledge discovery. He can be contacted at fred@metalab.unc.edu with questions or comments. Thanks to John Joseph Bachir, Terrell Russell, and Gary Marchionini for assistance proofing, editing and refining this document.

