

“View My Friends” on Facebook: Identifying the Impact of Web-Based Social Network Participation on Student Retention

Daniel Jones-White

Andrea Galliger

John P. Kellogg

*Presented at the 2008 AIRUM Conference
Bloomington, MN, Nov. 6th – 7th, 2008*



UNIVERSITY OF MINNESOTA

Theoretical Background

- “the student’s peer group is the single most potent source of influence on growth and development during the undergraduate years” (Astin 1993, 398).
- “One outcome theorized to be dramatically affected by student peer culture is persistence” (Thomas, 2000).



The Importance of Social Integration

- Social Integration related variables contributing to Student Success at the U.
 - Campus Recreational Facilities
 - Living on Campus
 - Participating in some Living Learning Community
- Each of these variables emphasize the propensity for integration inherent in the “communal potential” of these activities, but are unable to completely quantify social interactions of students.



Difficulty Measuring Social Integration

- “The quantification and measurement of human relations and group formation present unique methodological problems for the researcher” (Thomas, 2000).
- “This is because current methods in the persistence literature assess social integration with sole reliance on students’ own accounts of how strongly they identify, and feel membership with others” (Thomas, 2000).



The Reshaping of Community through Social Network Sites.

- Social network sites (SNSs) have become fixtures on college campuses and “constitute an integral part of the daily communication practices for many students” (Ellison, 2008).
- A social network site is are “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system” (boyd and Ellison, 2007)
- As such, they provide a tractable list of ‘friends’ from which we can more accurately measure and interpret the impacts of social networks.



Research Questions

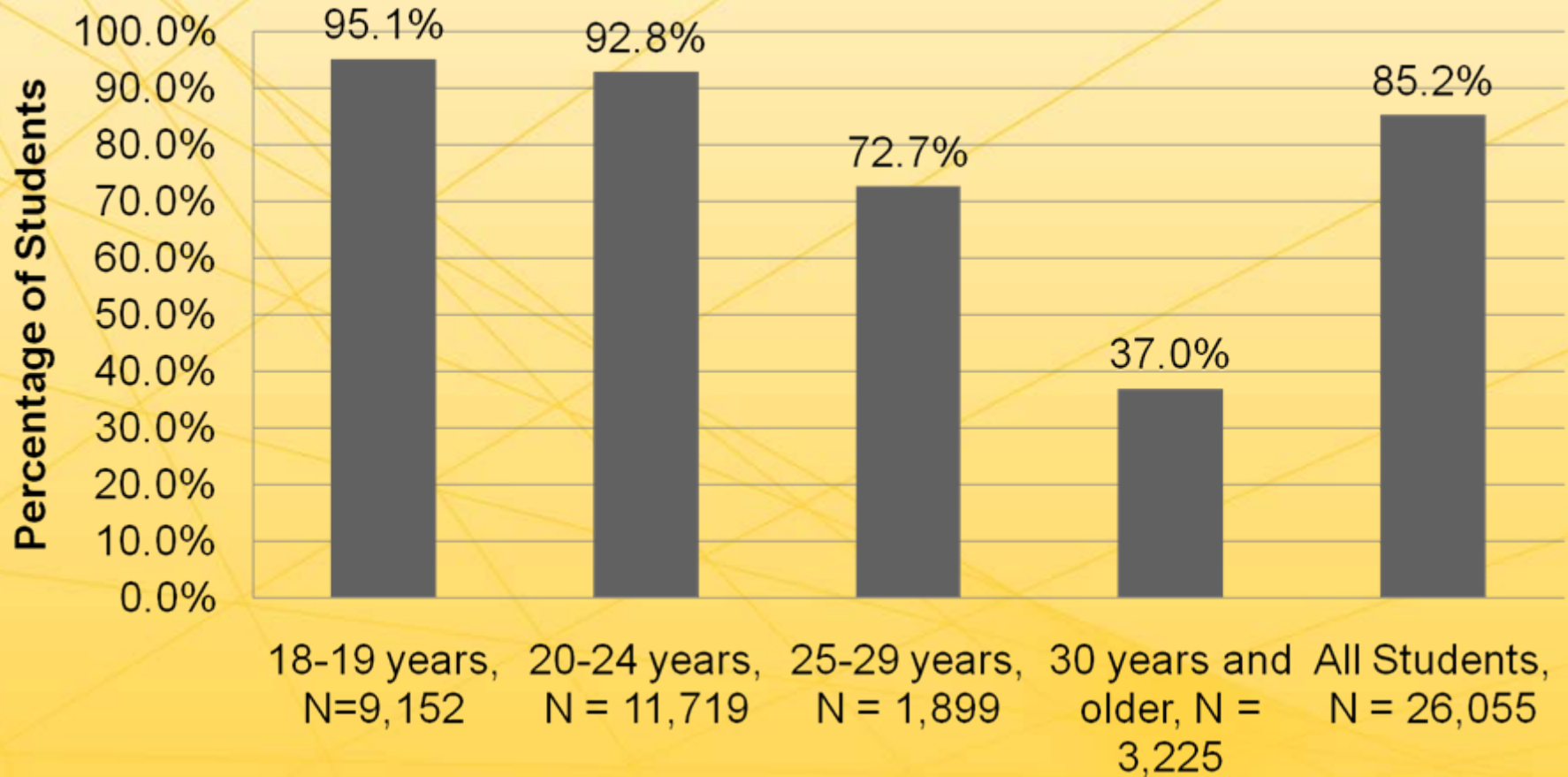
- Does involvement in university related web-based social networks increase the likelihood of retention?
- Does the number of friends increase the likelihood of staying for a second year?
- Do different structures of social integration impact a student's decision to return?



SOCIAL NETWORKING SITES: WHO?, WHAT? AND WHY?

Who uses Social Networking Sites?

Figure 6-1. Use of Social Networking Sites, by Age



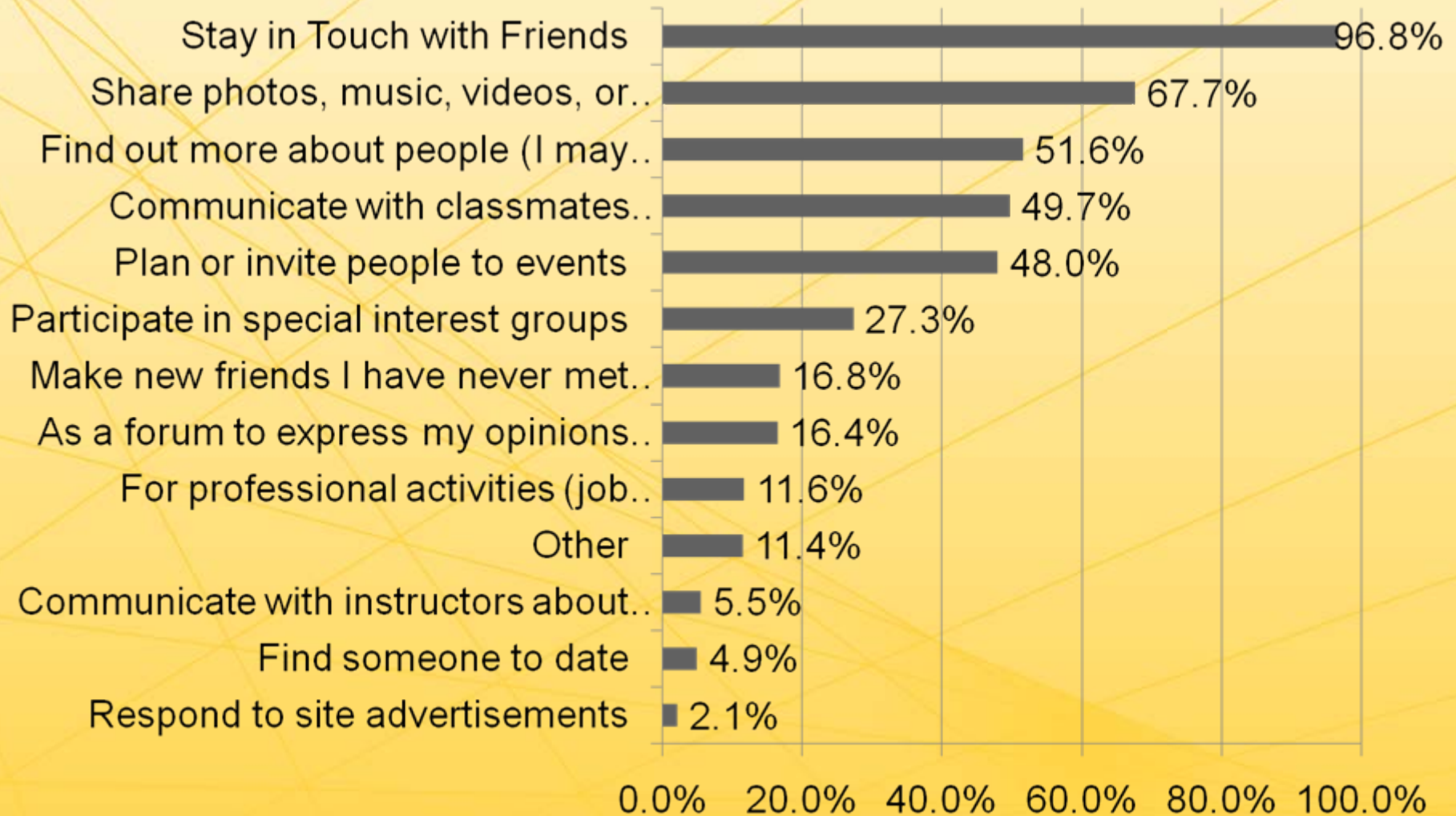
Source: EDUCAUSE. "The ECAR Study of Undergraduate Students and Information Technology, 2008."

<http://net.educause.edu/ir/library/pdf/ERS0808/RS/ERS0808w.pdf>



UNIVERSITY OF MINNESOTA

Why do Students Use SNS Sites?



Source: EDUCAUSE. "The ECAR Study of Undergraduate Students and Information Technology, 2008."

<http://net.educause.edu/ir/library/pdf/ERS0808/RS/ERS0808w.pdf>



UNIVERSITY OF MINNESOTA

What Social Network Sites do Students Use?

Social Networking Site	18-19 years, (N=8,705)	20-24 years, (N = 10,929)	25-29 years, (N = 1,381)	30 years and older, (N = 1,192)	All Users (N = 22,207)
Facebook	95.5%	92.9%	60.6%	44.9%	89.3%
MySpace	44.0%	45.1%	79.5%	73.2%	48.3%
Other	8.2%	7.8%	13.7%	17.6%	8.9%
Yahoo! 360	2.3%	1.9%	6.6%	12.2%	2.9%
Windows Live Space	3.0%	2.0%	3.5%	5.1%	2.6%
LinkedIn	0.4%	3.1%	5.0%	9.7%	2.5%
Friendster	0.9%	1.5%	4.3%	3.7%	1.5%
Bebo	1.2%	0.9%	0.7%	1.6%	1.0%
Sconex	0.2%	0.1%	0.1%	0.0%	0.1%

Source: EDUCAUSE. "The ECAR Study of Undergraduate Students and Information Technology, 2008."

<http://net.educause.edu/ir/library/pdf/ERS0808/RS/ERS0808w.pdf>

What is **facebook** ?

- Facebook is a social networking website launched on February 4, 2004.
- Users can join networks organized by city, workplace, school and region to connect and interact with people.
- People can add friends and send them messages and update their personal profile to notify friends about themselves.
- The website currently has more than 100 million active users.





Goldy G.

- Wall
- Info
- Photos
- Boxes

Basic Information

Networks: Minnesota '13
 Minneapolis / St. Paul, MN

Hometown: Minneapolis, MN

Looking For: Friendship

Personal Information

Activities: [Gopher Sports](#) , Pulling Shenanigans, General Tom Foolery, Making people laugh.

Interests: Throwing projectiles at Wisconsin fans, Minnesota Sports, youtube.com, Maroon and Gold, America

Favorite Music: Caddyshack theme, Justin Timberlake, B 52's, Blue Man Group, Lil John, OK GO, Timbaland, Dave Matthews Band, 50 Cent, Kanye West, T.I.

Favorite TV Shows: The Office, Scrubs, Rob & Big, AFV, MXC, South Park

Favorite Movies: Caddyshack, Office Space, Superbad, Super Troopers

Favorite Books: [Hello Goldy!](#) , if you give a mouse a cookie

Favorite Quotations: SPIN YOUR HEAD! SPIN YOUR BODY!

Who hates Iowa? We hate Iowa!

Gophers Win.

"Let it Rain!!"

"Do work"

"WE MUST PROTECT THIS HOUSE!!!"

"If you don't like America then you can just go on and get out!"

"awwwhaha, crunch's birthday"
~marko jaric

"they brought benny da bull ... and da gopher too"
~dirk nowitzki

About Me: Better Dead than Red

Contact Information

Current Address: 1925 University Ave. SE- The Barnyard
 Minneapolis, MN 55414

AIM: goldy@umn.edu

- Add Goldy as a Friend
- View Photos of Goldy (692)
- View Videos of Goldy (7)
- Send Goldy a Message
- Poke Goldy

Information

Networks: Minnesota '13
 Minneapolis / St. Paul, MN

Current City: Minneapolis, MN

Friends

2,230 friends [See All](#)



Advertise

Credit Card Debt?



Pay off your credit card faster. No more stress. Avoid bankruptcy.



100 Million Active Users



With Facebook's highly targeted ad system, how will you connect with them? Learn more here!



[More Ads](#)



Goldy G.

- Wall
- Info
- Photos
- Boxes

Minnesota Basketball Fans

Home | Photos | Trivia | Discuss | Quizzes | Video | Recruit Customize



Next Game:
Minnesota vs. Concordia
 Fri, Nov 14, 2008 - 9:00 PM (ET)
 Are you going to the game?

Minnesota Basketball Trivia: **1460** points
 Level: **Adept**

The Minnesota Basketball Recruiting Race



Minnesota Basketball Recruiting Race:
 4125 points (Conference Champion)

[Join the Challenge](#)

[Invite your friends](#) | [See more teams](#)

Total Sports Fan

What teams do you like? [Click here](#) || [*Discuss Sports*](#)



Minnesota Barnyard

Check In Recruit

Cheer with Minnesota Barnyard



6TH MAN

Loyal since Oct 31 2007

+146 points will make you a **Starter**
 and get you a sweet new jersey...
 Recruit to earn

[Join Minnesota Barnyard!](#)

The Brawl



2282



7467

Association for Institutional Research in the Upper Midwest

Global



Basic Info

Type: [Organizations - Professional Organizations](#)

Description:

AIRUM is a regional organization of institutional researchers. The objectives of the organization are to:

- * improve and disseminate research predominantly of concern to institutions of higher education.
- * provide a collegium for professional persons in a common profession.
- * provide an avenue for professional accomplishment by offering at least annual meetings at which papers may be presented, speeches given, workshops taught, and other such professional contributions made.
- * encourage association with the Association for Institutional Research and to promote AIR forums and other activities.
- * encourage professional identification, development and renewal.

Contact Info

Website: <http://www.airum.org/index.html>

Members

Displaying 8 of 9 members [See All](#)



[Invite People to Join](#)
[Leave Group](#)

Share +

Officers

Peter M Raddiffe
Chair

Group Type

This is an open group. Anyone can join and invite others to join.

Admins

- Daniel Jones-White (creator)
- Peter M Raddiffe

Events

1 upcoming event [See All](#)

2008 AIRUM Annual Conference
Bloomington, MN
Tomorrow, November 6 at 8:00am

Research Design and Data Description

- University of Minnesota-Twin Cities
- First-time, Full-time Freshman in Fall 2007
- Random Sample of 833 students.
- Names were searched within the University of Minnesota's Facebook network.
- Explored the network properties of the student.



Independent Variables of Interest

➤ Network Participation

- Does the student have a profile linked to the University of Minnesota's Facebook network?
- Coded 1 if yes, 0 otherwise

➤ Network Size

- How many friends does the student have *within* the University of Minnesota's Facebook network?

➤ Network Structure

- How is the student's network of friends structured?
 - Density – the number of cohort Facebook friends over number in the incoming freshman class.
 - Vertical Integration – the number of non-cohort Facebook friends over the students total number of Facebook friends.



Dependent variable: Defining Student Success

- Success means different things to different people.
- In this study we interpret and model success in two different ways.
 - End of First Year GPA
 - Retention into the Second Year
- While other measures of success exist, and were considered, these are easiest to comprehend.



Variables in the Model

Control variables

- First-term academic performance
- Academic preparedness
- Academic fit
- Demographics
- Geographic/tuition residency
- Financial need
- Social integration



Sample Properties

Random Sample

Population

		N	Mean	St.Dev.		N	Mean	St.Dev.
Dependent Variables	1 st Year GPA	833	3.072	0.741		5253	3.095	0.702
	Retention	836	0.859	0.348		5279	0.879	0.326
Academic Performance	Completion Ratio	826	0.964	0.137		5235	0.962	0.135
	W Count	836	0.160	0.584		5279	0.117	0.458
Academic Background	ACT/SAT Score	836	25.533	5.313		5279	24.555	6.923
	Remedial Course	836	0.028	0.164		5279	0.022	0.145
	1st Choice College	836	0.734	0.442		5279	0.729	0.444
Demographic Characteristics	First Generation	836	0.274	0.446		5279	0.304	0.460
	Under 19	836	0.141	0.348		5279	0.150	0.357
	Under Represented Minority	836	0.109	0.312		5279	0.089	0.285
	Asian	836	0.123	0.329		5279	0.133	0.340
	Female	836	0.567	0.496		5279	0.557	0.497

Sample (continued)

Random Sample

Population

		N	Mean	St.Dev.		N	Mean	St.Dev.
Geographic Origin	Out-of-State	836	0.056	0.230		5279	0.052	0.223
	Reciprocity	836	0.212	0.409		5279	0.216	0.411
Finance	Pell Eligible	836	0.202	0.402		5279	0.194	0.395
Social Integration	On Campus Housing	836	0.762	0.426				
	Facebook Page	836	0.740	0.439		-	-	-
	No. of Facebook Friends	467	63.929	43.503		-	-	-
	Density	466	0.008	0.006		-	-	-
	Integration	464	0.378	0.183		-	-	-

Methodology

- Multivariate approach to isolate independent effects of variables and allow for the causal inferences.
- Ordinary Least Squares regression utilized for model predicting GPA.
- Probit regression analysis utilized for model predicting retention.
- Robust Standard Errors are provided to protect against any potential heteroskedasticity.



Q1. Does involvement in university related web-based social networks increase the likelihood of retention?

MODEL 1. NETWORK PARTICIPATION

Table 1. Effect of SNS Participation

GPA
N = 824
R-square = 0.496

Retention
N = 826
Pseudo R-sq = 0.169

		Coef.	Std. Err.	P>t		Coef.	Std. Err.	P>t
Academic Performance	Completion Ratio	2.996	0.134	0.000		3.210	0.426	0.000
	W Count	-0.127	0.061	0.038		-0.273	0.153	0.075
Academic Background	ACT/SAT Score	0.017	0.005	0.000		0.012	0.012	0.318
	Remedial Course	-0.116	0.089	0.195		0.087	0.352	0.804
	1st Choice College	0.196	0.042	0.000		0.282	0.132	0.033
Demographic Characteristics	First Generation	-0.124	0.044	0.005		-0.205	0.130	0.114
	Under 19	0.101	0.048	0.036		0.083	0.189	0.660
	Under Represented Minority	-0.033	0.068	0.628		0.268	0.223	0.230
	Asian	-0.035	0.057	0.544		0.319	0.204	0.117
	Female	0.134	0.035	0.000		-0.294	0.129	0.022

Table 1. Effect of SNS Participation

GPA
N = 824
R-square = 0.496

Retention
N = 826
Pseudo R-sq = 0.169

		Coef.	Std. Err.	P>t		Coef.	Std. Err.	P>t
Geographic Origin	Out-of-State	0.020	0.076	0.793		-0.250	0.276	0.365
	Reciprocity	-0.026	0.044	0.552		-0.161	0.149	0.281
Finance	Pell Eligible	-0.062	0.047	0.194		-0.203	0.154	0.187
Social Integration	On Campus Housing	0.024	0.045	0.588		0.193	0.150	0.197
	Facebook Page	-0.049	0.042	0.252		-0.026	0.141	0.851
	Constant	-0.363	0.169	0.032		-2.229	0.516	0.000

Q2. Does the number of friends increase the likelihood of staying for a second year?

MODEL 2. NETWORK SIZE

Table 2. Effect of SNS Size

GPA
N = 464
R-square = 0.524

Retention
N = 464
Pseudo R-sq = 0.185

		Coef.	Std. Err.	P>t		Coef.	Std. Err.	P>t
Academic Performance	Completion Ratio	2.932	0.196	0.000		3.594	0.601	0.000
	W Count	-0.252	0.084	0.003		-0.008	0.256	0.975
Academic Background	ACT/SAT Score	0.023	0.007	0.000		0.035	0.017	0.043
	Remedial Course	-0.167	0.182	0.360		-0.180	0.549	0.744
	1st Choice College	0.199	0.054	0.000		0.076	0.187	0.685
Demographic Characteristics	First Generation	-0.131	0.056	0.020		-0.009	0.172	0.959
	Under 19	0.012	0.060	0.843		-0.202	0.228	0.376
	Under Represented Minority	-0.098	0.088	0.266		0.388	0.284	0.173
	Asian	0.016	0.078	0.840		0.492	0.338	0.145
	Female	0.132	0.044	0.003		-0.516	0.176	0.003

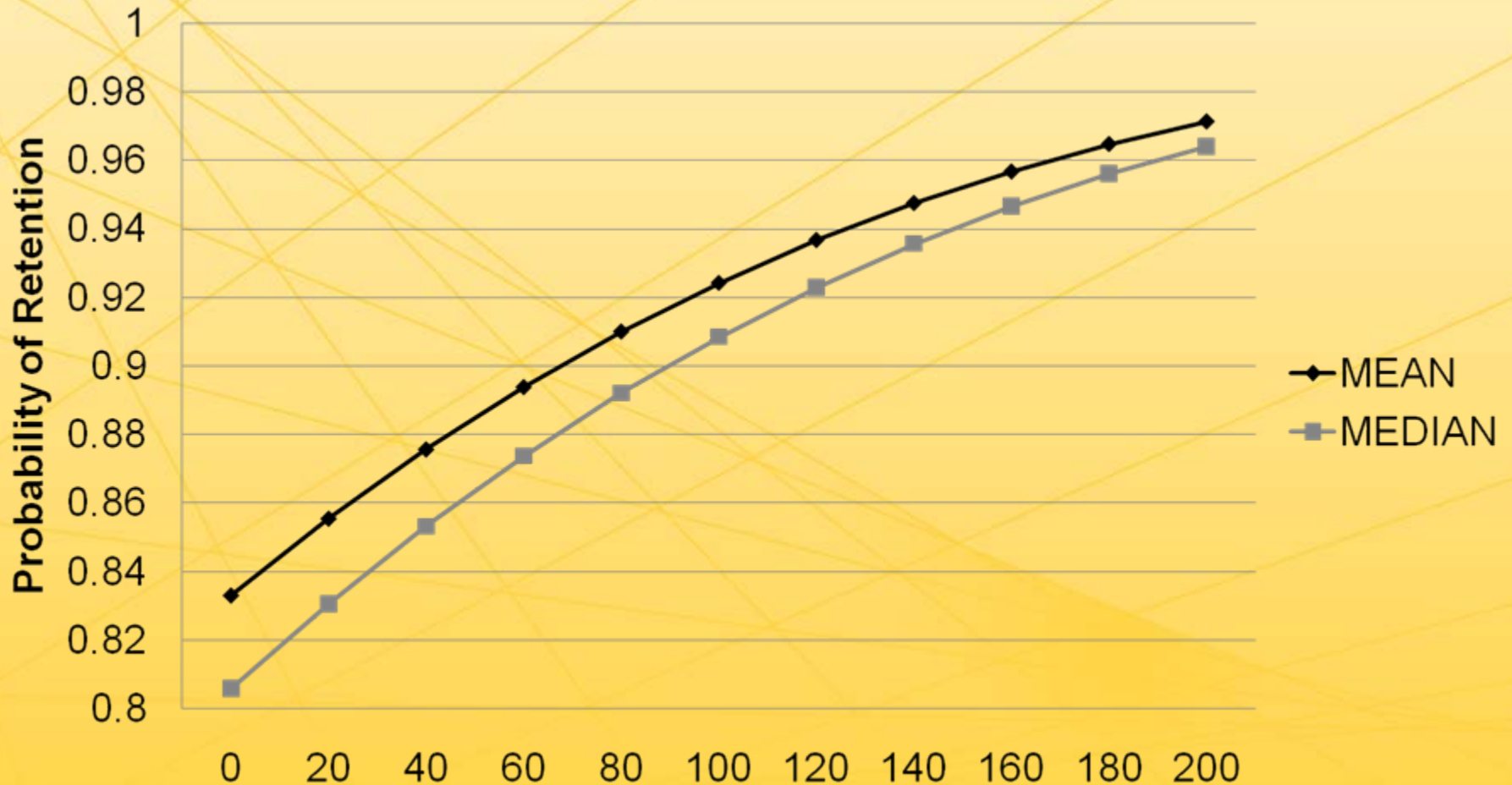
Table 2. Effect of SNS Size

GPA
N = 464
R-square = 0.524

Retention
N = 464
Pseudo R-sq = 0.185

		Coef.	Std. Err.	P>t		Coef.	Std. Err.	P>t
Geographic Origin	Out-of-State	0.062	0.099	0.532		0.024	0.374	0.950
	Reciprocity	0.040	0.056	0.474		-0.042	0.194	0.828
Finance	Pell Eligible	-0.045	0.062	0.468		-0.240	0.202	0.235
Social Integration	On Campus Housing	-0.007	0.063	0.906		-0.014	0.242	0.954
	No. of Facebook Friends	0.001	0.000	0.005		0.005	0.002	0.059
	Constant	-0.582	0.249	0.020		-3.180	0.734	0.000

Figure 1. Effects of No. of Facebook Friends on Probability of Retention



Q3. Do different structures of social integration impact a students decision to return?

MODEL 3. NETWORK STRUCTURE

Table 3. Effect of SNS Structure

GPA
N = 461
R-square = 0.528

Retention
N = 461
Pseudo R-sq = 0.190

		Coef.	Std. Err.	P>t		Coef.	Std. Err.	P>t
Academic Performance	Completion Ratio	2.939	0.197	0.000		3.605	0.602	0.000
	W Count	-0.238	0.086	0.006		0.014	0.254	0.957
Academic Background	ACT/SAT Score	0.024	0.007	0.001		0.040	0.018	0.025
	Remedial Course	-0.156	0.178	0.381		-0.134	0.563	0.812
	1st Choice College	0.192	0.053	0.000		0.037	0.187	0.844
Demographic Characteristics	First Generation	-0.135	0.056	0.016		-0.016	0.171	0.925
	Under 19	-0.002	0.061	0.980		-0.236	0.228	0.301
	Under Represented Minority	-0.096	0.089	0.277		0.353	0.284	0.214
	Asian	0.017	0.078	0.828		0.535	0.338	0.113
	Female	0.133	0.045	0.003		-0.531	0.177	0.003

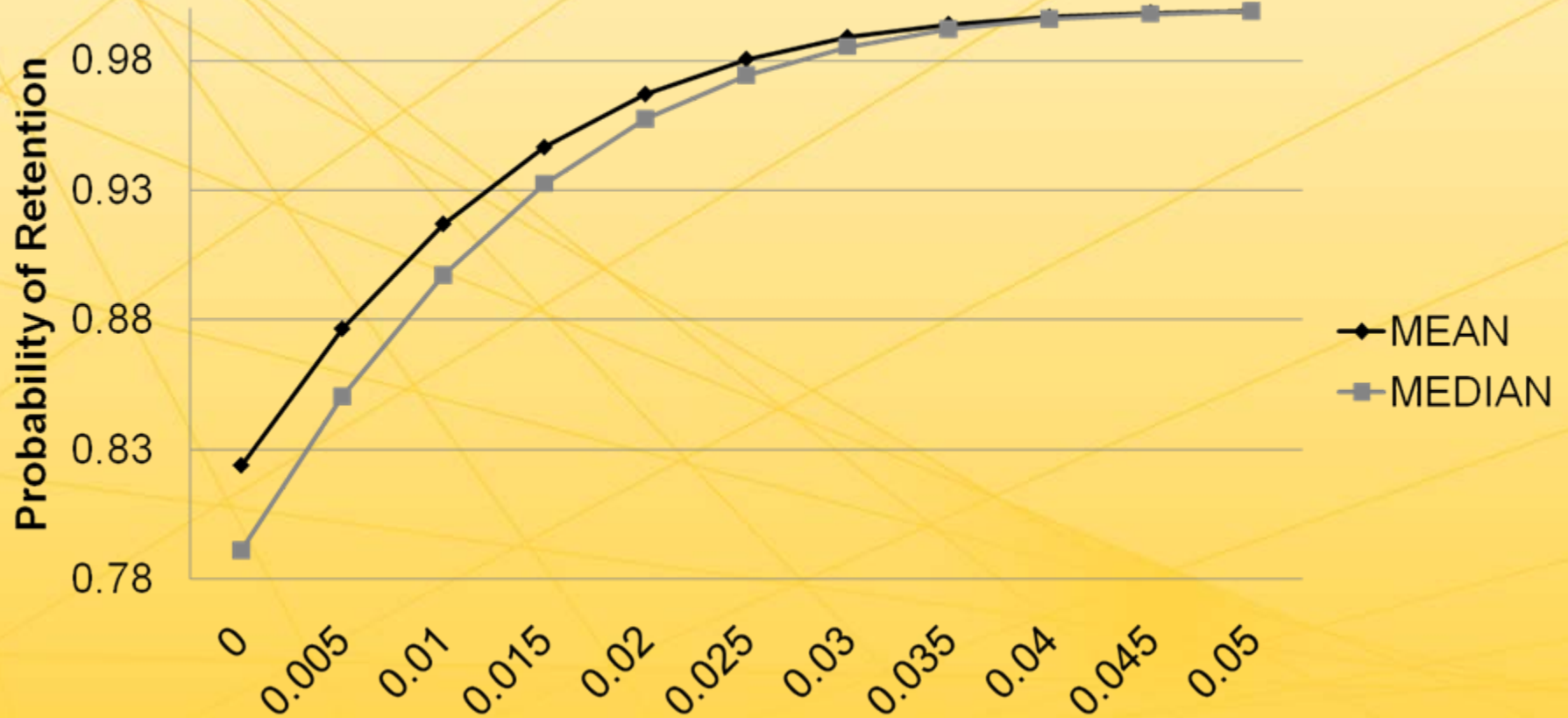
Table 3. Effect of SNS Structure

GPA
N = 461
R-square = 0.528









Retention
N = 461
Pseudo R-sq = 0.190

		Coef.	Std. Err.	P>t		Coef.	Std. Err.	P>t
Geographic Origin	Out-of-State	0.057	0.098	0.561		-0.026	0.364	0.944
	Reciprocity	0.013	0.059	0.823		-0.087	0.201	0.666
Finance	Pell Eligible	-0.032	0.062	0.601		-0.215	0.205	0.295
Social Integration	On Campus Housing	-0.027	0.066	0.680		-0.030	0.237	0.900
	Cohort Density	12.371	4.109	0.003		45.561	18.656	0.015
	Vertical Integration	-0.113	0.136	0.405		0.167	0.432	0.699
	Constant	-0.540	0.262	0.040		-3.369	0.785	0.000

Figure 2. Effects of Network Structure on Probability of Retention



Summary

		GPA	RETENTION
SNS Participation	Does the Respondent have a Facebook Page?		
SNS Size	How Many UMN Friends does the Respondent have on Facebook?		
SNS Structure	How dense is the Respondent's Cohort Structure?		
	How Vertically Integrated is the Respondent's Cohort Structure?		

Policy Implications

- Colleges administrators should recognize SNS as an important medium for student interaction and utilize them to their advantage.
- Faculty should be encouraged to utilize SNS to engage with their students as it may provide a potential way to improve academic integration.
- Programs designed to engage student might consider to facilitate horizontal rather than vertical integration.



Download Paper &
Presentation at...

<http://www.irr.umn.edu/papers.htm>



UNIVERSITY OF MINNESOTA