

## **FACEBOOK USAGE AS A PREDICTOR OF RETENTION AT A PRIVATE 4-YEAR INSTITUTION**

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### **ABSTRACT**

Computer-based social networking has become ubiquitous on college and university campuses. However, little is known about how this form of networking reflects social integration which is considered to be an integral component of student persistence. To address this topic, a random sample of 375 entering freshman were used to evaluate the differences between persisters and non-persisters in their use of "Facebook," currently the most popular social computing network. Findings indicated that persisters were more actively involved and more likely to use Facebook for university-based relationships than non-persisters. Activity on Facebook was also statistically significantly related to a measure of Tinto's concept of social integration. Facebook appears to be a behavioral measure of social integration and may be an important factor in facilitating the transition to college for students.

### **INTRODUCTION**

For the last three decades student retention has been a major issue at colleges and universities throughout the country. The reason for this heightened concern is simple: the effects of attrition are far reaching; they extend not only to the

individual, but the institution, and society as a whole (Tinto, 1993). Researchers have comprehensively examined many facets of student retention in order to provide solutions to the metaphorical “retention puzzle” (Bank, Slavings, & Biddle, 1990; Barefoot, 2004; Braxton, 2000; Hausmann, Schofield, & Woods, 2007), and institutions continue to implement research to improve retention. However, many in the higher education community believe there is more to discover about this complex phenomenon (Braxton, 2000; Tinto, 2006-2007). Therefore, continued research is necessary.

One of the primary concepts that researchers have used in their discussion and examination of student retention issues is a student’s fit into the campus climate or environment. Tinto’s (1993) interactionalist model of student departure, which is primarily a student/environment fit model, has been one of the most widely researched in the areas of student retention/attrition. In this model, Tinto attempts to explain why some individuals come to leave their chosen institution prior to degree completion. Despite the popularity of Tinto’s model, there are some who argue that certain constructs are lacking and in need of further explanation (Braxton, Milem & Sullivan, 2000). Braxton (2000) suggests that Tinto’s model is incomplete and in need of revision and “theory elaboration” using economic, psychological, and sociological perspectives.

In an attempt to explore the impact that social computing has on student retention the authors of this article test an alternative measure of Tinto’s construct of social integration by examining student behaviors on the increasingly popular social computing network known as “Facebook.”

## **Facebook and Retention**

Facebook has quickly become a term that is part of the higher education lexicon and that is an integral part of the social fabric for many college students. Facebook was launched in February of 2004 by Harvard undergraduates Mark Zuckerberg, Dustin Moskovitz, and Chris Hughes from their Harvard residence hall in an effort to help college students connect with each other. Within 2 months of its launch, Facebook expanded to other Boston area universities and Ivy League schools. Expansion rapidly continued to colleges and universities across the United States. Currently, Facebook is free and is virtually open to anyone. It describes itself as a “social utility that connects people with friends and others who work, study and live around them” (Facebook, 2007). The company develops technologies that facilitate the sharing of information through the social graph, the digital mapping of people’s real-world social connections” (Facebook, 2007). Facebook has approximately 64 million active users worldwide and continues to expand. Facebook reports 47,000 regional, work related, collegiate, and high school networks (Facebook, 2007). Most individual colleges and universities are an independent network. Specifically, this means that students as members of that

network are granted users' permission to view profiles in that network and join most of the groups.

When a student signs up through Facebook he or she creates an individual profile that serves as the individual's access portal. The student is then able to connect to people through a variety of applications and features. Applications include the ability to upload photos and videos onto the student's profile page, to exchange notes with other students similar to e-mail, to join student-formed groups of mutual interest, to participate in a wall-to-wall feature that displays written exchanges for others to follow, and a newsfeed that allows a student to provide updates on his or her life. Facebook offers several other features that help to create a virtual community allowing students to manage and even develop their peer relationships. Facebook.com provides a detailed description of these applications and features.

Due to the popularity of the site, college administrators have been paying close attention to how the site impacts student life. Web-based articles and blogs discussing various aspects of student and college personnel use are prevalent (e.g., Peace, 2007; Stutzman, 2006). However, there is scant research that investigates how on-line networking impacts student retention. To the authors' knowledge, there are currently no studies that examine college student retention and Facebook usage.

### **Social Computing and Relationship Formation and Maintenance**

Social networking researchers have been able to provide some information about computer mediated relationship formation and maintenance. Initially, Kraut, Patterson, Lundmark, Kiesler, Mukopadhyay, and Scherlis (1998) reported negative personal and relational impacts of Internet usage. Longitudinal data (1-2 years) was examined and greater use of the internet as a communication tool was associated with decreased communication with family members, declines in social connections (fewer members in their social circles), and greater levels of loneliness and depression. Three years later, however, Kraut, Kiesler, Boneva, Cummings, Helgeson, and Crawford (2002) completed a follow-up study on the same sample and reported that these negative effects dissipated over time. In this follow-up study, Internet usage was associated with more positive effects regarding communication, social involvement, and well-being. Concerning relationship formation, Parks and Floyd (1995) surveyed individuals participating in online topic-oriented bulletin boards and found similarity between online relationships and those developed face-to-face in terms of their breadth, depth, and quality.

One feature that has been suggested to facilitate cyber relationships is perceived anonymity. This perception is posited to lead to greater levels of self-disclosure which, in turn, may contribute to relationship formation. Kang (2000) states, "Cyberspace makes talking with strangers easier. The fundamental point of many

cyber-realms, such as chat rooms, is to make new acquaintances. By contrast, in most urban settings, few environments encourage us to walk up to strangers and start chatting" (p. 1161). Initial research has been supportive of this conjecture. McKenna, Green, and Gleason (2002) found that those who better express their true self over the Internet were more likely than others to have formed close on-line relationships and moved these friendships to a face-to-face basis. Bargh, McKenna, and Fitzsimons (2002) built on the results from McKenna et al. by conducting a series of experiments that determined that people randomly assigned to interact over the Internet vs. face-to-face were better able to express their true-self qualities to their partners.

The empirical literature in the area of social computing and relationship formation and maintenance specifically among college students is growing. One recent study examined social capital as it relates to college students' use of online social network sites. In this study, Ellison, Steinfield, and Lampe (2007) found a strong association between the use of Facebook and three types of social capital. The strongest relationship was between Facebook usage and bridging social capital, which the authors defined as loose connections between individuals who may provide useful information or new perspectives, but typically not emotional support. In another study, Duggan (2004-2005) examined e-mail as a form of social capital in first and second generation college students. Duggan found that for both groups owning an e-mail account was a statistically significant predictor of first-year persistence.

## Theoretical Framework

This section will examine Tinto's (1993) model in greater depth to provide a framework for the utilization of a revised social integration measure. Tinto attempts to explain why some individuals leave their chosen institution prior to degree completion. The central proposition of this theory is that students have various pre-entry attributes that interact with the academic and social systems of the institution. Tinto postulates that these interactions either lead to positive (integrative) experiences that heighten intentions and commitment to the institution or lead to negative (malintegrative) experiences that lower intentions and commitment to the institution.

Tinto hypothesizes that within the social system, the student's involvement in formal extracurricular activities and informal peer-group interactions also lead to positive experiences that lead to integration or negative experiences that lead to disconnection. Numerous studies have tested the social integration component of Tinto's model and have found that students who report a greater level of integration into the social system of the institution will have a greater level of subsequent goal and institutional commitment (Allen & Nelson, 1989; Cabrera, Castaneda, Nora, & Hengstler, 1992; Cabrera, Nora, & Castaneda, 1992; Pascarella & Terenzini, 1983; Stage, 1988), thereby increasing the chances of retention.

Many of the aforementioned studies have used Pascarella and Terenzini's (1980) institutional integration scales to operationalize Tinto's (1993) construct of social integration. This measure will be discussed more thoroughly later in this study. This study's attempt to measure social integration is unique because it provides a real-time look at actual student behaviors rather than self-reported behaviors and attitudes.

## **Purpose**

The primary purpose of this study is to measure social integration by assessing first-year students' activity on the social computing system known as Facebook. In addition, this study will test the ability of the new social integration measure (Facebook activity) to predict freshman to sophomore retention in first-year students at a private 4-year institution.

## **Research Objectives**

This study has three primary research objectives:

1. Operationalize a social integration measure by quantifying student activity on Facebook.
2. Test the ability of the new social integration measure (Facebook activity) to predict freshman to sophomore retention in first-year students at a private four-year institution.
3. Assess the convergent validity of this new measure of social integration with a more traditional measure of social integration.

## **METHODS**

### **Participants, Retention, and Persister Status**

The population selected for this study came from first-year students at a selective, private, residential, master's level university located in the Southwestern region of the United States. For this study, this institution will be referred to as Central Christian University (CCU). In the fall of 2006, the total undergraduate population at the sampled university was approximately 4145. The number of entering first-year students for fall 2006 was 964. Participants were 375 randomly selected first-semester freshmen students enrolled in the fall of 2006. This represented 38.9% of the entire 2006 freshman cohort. Sixty-two percent of the sample was female. The mean age of the participants was 18.11 ( $SD = 1.59$ ). The ethnicity breakdown was as follows: 80% Caucasian, 8% African American, 5% Hispanic, 1% Asian American, and 6% Other.

First-year persister status of the participants was noted in the fall semester of 2007. In the fall of 2007, 83.7% of the prior year cohort returned and were designated as persisters. The 16.3% who did not return were labeled as non-persisters.

## Social Integration Measure

In the fall semester of 2006 the participants completed the Peer Group Interaction Scale from Pascarella and Terenzini's (1980) Institutional Integration Scales. This scale, along with the Interaction with Faculty Scale, are commonly used to operationalize Tinto's (1993) construct of social integration (Allen & Nelson, 1989; Cabrera, Castaneda, et al., 1992; Cabrera, Nora, et al., 1992; Pascarella & Terenzini, 1983; Stage, 1988). The Interaction with Faculty Scale was not used in this study. The Peer Group Interaction Scale is a 7-item factorially derived scale measuring the extent and quality of students' interaction with their peers. Each item is rated on a 5-point Likert-type scale (1 = strongly disagree; 5 = strongly agree). Example items on the Peer Group Interaction Scale include: "The student friendships I have developed this past year have been personally satisfying"; "I have developed close personal relationships with other students"; "My interpersonal relationships with other students have had a positive influence on my personal growth, values and attitudes"; and "My interpersonal relationships with other students have had a positive influence on my intellectual growth and interest in ideas." Internal consistency for the current sample was .79.

## Facebook Indices

In the fall of 2006, eleven raters logged onto [www.facebook.com](http://www.facebook.com) and located the Facebook profiles of each participant. The following information was recorded for each profile: number of University Network Facebook Friends, number of Facebook groups, number of Wall Posts and number of Photo Albums. These numbers are readily available on each Facebook profile.

For non-Facebook users, some explanation of these indices may be warranted. Regarding Facebook friends, these are only Facebook affiliations. Facebook friends may or may not even know each other. However, Facebook is a means of meeting new people. Thus, by inviting a person to be a Facebook friend, the potential for a real-world connection is established in a way that might not otherwise have been possible. Further, real-world friends are almost always Facebook friends (if both are Facebook users). In sum, the number of Facebook friends can function as an estimate of real or potential friends on the campus. If so, the number of Facebook friends may be a proxy measure for social integration. Note also that only in-network friends were recorded. That is, only those Facebook affiliations from the campus were assessed. Out-of-network associations (e.g., friends at other universities) were not included. Thus, from here on out the term Facebook friends will refer only to in-network (i.e., on campus) affiliations.

Beyond the number of Facebook friends, other forms of Facebook activity were recorded. Specifically, Facebook allows users to join groups, post on walls, and upload photographs. These behavioral activities on Facebook provide an estimate of Facebook usage. Of particular relevance for assessing social integration is

Facebook wall posting. Facebook users can write short notes on the walls (a space devoted to these notes on each Facebook user profile page) of their friends. While joining Facebook groups and uploading photos is self-initiated (the Facebook user does each), wall posting is friend-initiated (Facebook friends can invite other friends to join a group but this cannot be measured reliably). That is, Facebook friends must navigate to the user's wall and write a note. In short, wall postings reflect how many times a particular user has been independently sought out and communicated with. Consequently, beyond number of Facebook friends, wall postings are another indicator of Facebook popularity: the degree to which people seek you out for conversation.

Finally, in the fall of 2007 Facebook had just gone global, allowing Facebook users to have friends across networks (e.g., other high schools or universities). Thus, Facebook not only provides a means for connecting on the campus but also allows a user to keep in touch with high school friends at other universities. Thus, in the same session when the Institutional Integration Scales was given, a single dichotomous item was asked of each participant: Do you mainly use Facebook to connect with people here at CCU or with people NOT at CCU? This question was asked to assess if there were differences between persisters and non-persisters on the degree to which they use Facebook as a social integration tool on the campus or use Facebook mainly as a means to keep up with friends and family back home (a non-social integration use). Keeping up with friends and family was considered non-social integration use because a student is not using Facebook to facilitate on-campus relationships if used in this capacity.

## **Data Analysis**

For the first research objective, independent samples *t*-tests were conducted to compare persisters and non-persisters on the Institutional Integration Scales and Facebook indices to see if Facebook operated similarly to a measure of social integration (i.e., Institutional Integration Scales). To address the second research objective, a Chi-square test of association was conducted to assess if persisters and non-persisters differed on how they use Facebook as measured by the dichotomously scored item that asked if Facebook was used to connect with others at CCU or outside of CCU. To address the third research objective, bivariate correlations between the measured Facebook indices and the Institutional Integration Scales (i.e., Peer Group Interaction) were conducted to assess if Facebook serves as a proxy measure for social integration.

## **RESULTS**

### **Persisters vs. Non-Persisters**

The initial analysis involved assessing the mean differences between persisters and non-persisters for the Facebook and Tinto social integration indices.

Descriptive statistics and independent-samples *t*-tests are presented in Table 1. As can be seen in Table 1, persisters rated themselves more highly on the Institutional Integration Scales relative to non-persisters as consistent with the retention literature (Allen & Nelson, 1989; Cabrera, Castaneda et al., 1992; Cabrera, Nora et al., 1992; Pascarella & Terenzini, 1983; Stage, 1988). Of particular interest to this study, two of the Facebook indices also showed associations with persister status. Specifically, persisters had statistically significantly more Facebook friends and wall postings than did non-persisters. As noted earlier, these two Facebook indices appear to be the two best indicators of Facebook popularity. In short, these results seem to indicate that Facebook is providing a means for social integration within the university community.

### Evidence of Facebook as a Measure of Social Integration

Support for Facebook reflecting social integration was observed in the cross-tabulation of persister status and if the student primarily used Facebook to connect with others on the ACU campus (a social integration usage) versus using Facebook primarily as a means to keep up with friends and family back home (a non-social integration use). The results of this cross-tabulation with a Chi-square test of association are found in Table 2. As can be seen in Table 2, it seems clear that persisters primarily (70.3%) use Facebook for social integration purposes. By contrast, non-persisters were roughly split in their use of Facebook with only 53.4% using Facebook for social integration. In sum, it seems clear that persisters use Facebook to enhance social integration more than non-persisters.

A final analysis also confirmed that Facebook is functioning as a proxy measure for social integration. Specifically, zero-order correlations were calculated between the Facebook indices and the institutional integration scale. These correlations are

Table 1. Mean Comparisons between Persisters and Non-persisters on Facebook Indices and Tinto Social Integration Items

Variables	Persisters ( <i>n</i> = 314)		Non-persisters ( <i>n</i> = 61)		<i>t</i> -value
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Facebook Indices:					
# Facebook Friends	109.05	78.70	81.71	38.98	3.59**
# of Groups	30.49	20.05	26.97	19.29	1.00
# of Wall Posts	182.02	132.54	123.04	106.33	2.62*
# of Photo Albums	3.84	4.26	3.04	3.26	1.41
Tinto Social Integration	27.85	4.29	26.42	4.10	2.47*

Note: \**p* < .01, \*\**p* < .001

Table 2. Cross-tabulation of Persister Status and Facebook Usage  
(% within Persister Status)

Facebook Usage	Persister Status	
	Persisters	Non-persisters
To Connect at ACU	70.3%	53.4%
To Connect outside of ACU	29.7%	46.6%

Table 3. Zero-order Correlations between Tinto Social  
Integration Scale and Facebook Indices

Facebook Indices	Tinto Social Integration
# of Facebook Friends	0.21***
# of Groups	0.10*
# of Wall Posts	0.16**
# of Photo Albums	0.08

Note: \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

presented in Table 3. Although the correlations were not large, all were in the predicted direction and three of the four were statistically significant. That is, those reporting higher scores on the institutional integration scale reported having more Facebook friends, more Facebook groups, and more wall postings. All in all, these correlations provide some preliminary convergent evidence that Facebook is assessing some facet of social integration.

In summary, as expected, the Tinto social integration measure was associated with retention. Interestingly, two of the relevant Facebook measures were also associated with retention. Specifically, persisters had more Facebook friends and more wall postings. Further, and in contrast to non-persisters, persisters were more likely to use Facebook for social integration purposes. Finally, convergent correlations were observed between the Facebook and Tinto indices, giving further support to the contention that Facebook might be fruitfully used as a proxy measure for social integration in future retention research.

## DISCUSSION

The transition from high school to the first year of college can be an unsettling adjustment. While some students adapt quickly to this new environment and accept the challenges before them, others feel threatened and overwhelmed (Brady & Allingham, 2007). Frequently, those students who feel threatened become paralyzed to take positive action and leave the institution before they have processed

their feelings of discomfort. Retaining students continues to be an ongoing challenge for colleges and universities, and numerous programs and strategies have been developed to help students persist (Ward, 2004). Institutions should pay particular attention to ideas that help their students adapt to their new surroundings.

To create stability in the midst of this profound change, students might seek out the social support of others to situate themselves within the larger university community. Students also may engage in activities to define and/or redefine their self concept and search for other institutional sources of support (Antonio, 2004). Social computing networks have been reported in popular articles to be one component of assisting in creating this stability among students in their transition to college. This study provides evidence that one's activity on Facebook seems to be related to a student's social integration and subsequently to his or her persistence at the institution. It is possible that this Facebook activity and resulting persistence are due, at least in part, to an increased level of connectedness to others at the institution, an increase in social capital among peers, and a boldness to share with others more of their individual self (via pictures, favorite music and movies, political views, etc.) and how that self can be incorporated into community.

With the positive link between Facebook usage and persistence found in this study, institutions should consider ways to encourage and expand involvement in social networks among their students. Particular attention should be paid to new students both prior to matriculation and during their first year. Most entering students are accustomed to using their social computing networks to connect with others in their secondary educational settings prior to entering college. It follows that this same social computing practice is important to facilitate making new connections among their community in the university setting.

New students who do not become actively involved in social computing networks appear to be as much at risk for leaving the institution as those who do not become connected to the campus culture in other ways. Facebook activity could be an additional data point in determining risk of departure and the initiation of early alert intervention strategies.

While this study did not observe the results of institutional activity on Facebook (i.e., faculty, staff, administration participating on the social network site), it is certainly possible that the institution could assist with introducing and promoting social network connections among new students with such ideas as making connections with potential roommates and residence halls through admissions web portals, connections to a variety of orientation activities, connections to academic units, and forming freshman interest groups.

## **Limitations and Future Research Directions**

The current study had two main limitations. First, the sample size was a relatively small sample that lacked racial diversity. Ideally, a future study would have a larger sample with more diverse participants. Second, many other studies include

a faculty element when measuring social integration. This study only utilized peer-oriented measures to determine social integration. It would be insightful for a future study to examine institutional activity on Facebook (i.e., faculty, staff, administration) as it relates to social integration into a campus community.

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