AC 2009-2508: ONLINE SOCIAL NETWORKING: A MECHANISM TO ACCLIMATIZE INCOMING FRESHMEN AND FACILITATE DEPARTMENT COMMUNICATION

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Online Social Networking: A Mechanism to Acclimatize Incoming Freshmen and Facilitate Department Communication.

Abstract

Online social networking tools such as Facebook and Ning are non-intimidating ways to interact with other people. The benign nature of this environment serves as a useful mechanism for introducing incoming freshmen, many of whom are shy and introverted, to their peers prior to arriving on campus. This past summer, Facebook was used as the primary component for the BRIDGE program, which offers an opportunity to ease the transition of incoming freshmen into college life.

In addition to this role, online social networking tools have other potential uses for a Chemical Engineering department. First, they can be used as a mechanism to disseminate information quickly. Creating a central communications location allows easy announcement of department events or collection of feedback surveys. Another possibility is to use it as a discussion forum for their Chemical Engineering courses. Since classes can be gathered together into one group, exchanges on concepts or assigned problems can occur among the members (i.e. students and faculty of the course). Finally, online social networking tools can be used to stay in touch with alumni. This connection can help lead to a dialogue between the current underclassmen and alumni to initiate discussions on internships and career options at their place of employment.

Introduction

The ubiquity of online social networking, especially among college students, has made it a candidate for scholarly research. Most of the early work on this phenomenon has focused on a user's presentation of identity, and privacy concerns [1]. However, a growing body of knowledge has focused on their role within a college or university setting [2, 3, 4]. This work examines the use and role of online social networking towards facilitating the high school to college transition, as well as a tool for facilitating department communication.

The transition from high school to college involves many changes including:
- Facing a more rigorous curriculum and subject of study compared to high school
- Leaving their family and moving into a dormitory with strangers
- Acquiring new and unfamiliar social networks [5,6,7]

This critical time period in a student's academic career is often coupled with a large amount of anxiety and stress, which can carry over in ensuing semesters [8]. This cascade may cause detrimental effects on student learning and performance, as well as the college experience as a whole.

This work proposes that engaging freshmen chemical engineers within an online social network prior to their arrival will ease the stress of the high school to college transition. It will be accomplished by initiating a dialogue among freshmen and select members of the Department, and building a community of learners. Selznik described a "community of learners" as those sharing 1) Identity, 2) History and Culture, 3) Mutuality, 4) Plurality, 5) Autonomy, 6) Participation, and 7) Integration [9]. Although these elements were originally developed for face-to-face interactions, they can likewise be addressed through activity within the online network. For example:

• *Identity and Autonomy* - Personal biography posted on the website, and an affiliation as the "class of 200X" provides a sense of self and member of a community.

• *History and Culture* – A facilitator from the upperclassmen population offers guidance and answer questions on "how things are done" in the Department.

• *Mutuality, Plurality, and Participation* - Interactions within the online networking environment allows students to know one another in a non-threatening environment. Moreover, these interactions encourage interdependence among the members, thus facilitating future collaborations.

• *Integration* – A strong community requires the combination of the six aforementioned traits. Dedicated activity in the online social networking environment will ensure strong community when translated into the real world.

Creation of this community of learners is important for several reasons. First, it provides the student a feeling of being part of the department. Transforming a student's self perception as an individual high school graduate with no associations in the college, to a member of a group who aspire to become chemical engineers will ease their stress of having to integrate into a new social system. Second, inclusion within a community of learners instills the importance of sharing knowledge at the very beginning. This is underscored by the need to identify expertise and demand for coordination within interdisciplinary groups in which the student may participate once in the workforce. Finally, people tend to learn more in a community setting rather than as individuals. More specifically, the varying perspectives and interpretations offered by peers may complement (or even enhance) a student's perception on a particular concept. This is more advantageous when compared to the traditional model wherein a student relies on a single source of information (i.e the professor) that would be providing a handful of interpretations at best.

At the conclusion of the first semester, the online social network will serve a different purpose. Rather than *building* a community of learners, it will be used to *maintain* it. The site will act as the center of communication for the Department. Professors can easily initiate a dialogue on topics presented in the classroom, offer ancillary learning materials/sources, or deploy mass announcements. However, maintenance of the community not only occurs during a student's time at the college or university, but during their time after graduation. Alumni can contribute to the Department's education value through the online social network by keeping it up to date on recent developments in the field, and offering mentorship (online or real-world) to current students. Conversely, the Department can use the site to find out the fate of their

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graduates, announce pertinent events and milestones, and aid in formulating the alumni outcomes assessment for ABET.

Execution and Discussion

A small scale pilot program was initiated during the summer of 2008 to test the impact of the online social network on the high school to college transition. One student was identified among the underclassmen to facilitate the interactions within the Facebook environment. Incoming freshmen declaring Chemical Engineering as their major were identified and invited to the network. The facilitator's role was to encourage dialogue among the members over the course of the summer, answer any questions they may have, and broadcast events that will take place during the opening week.

During this trial run, the first major hurdle encountered was acquiring the contact information of the incoming Chemical Engineering freshmen. Several members of the admissions staff were away for vacation during the early part of the summer, thus causing difficulty in gathering the required student data. This problem will be addressed in the future by expressing our intentions of acquiring this information sometime during the spring semester while the admissions office is fully staffed, and coordinating appropriately.

The second major hurdle encountered was having the students join the Facebook group. Although most graduating seniors have experience with this environment, there surprisingly was a tepid response to the initial solicitation sent out by the coordinator. However, more students joined as the summer drew closer towards the beginning of the semester. One potential way to increase the number of members is to distribute a more formal notice mailed directly to their home shortly after their acceptance to the college and declaration of major.

The actual Facebook page had a fair amount of conversation, but also acted as a vessel to get a better view of the incoming freshman Chemical Engineers from an administrator point of view. The group had 18 members total, all with Facebook accounts prior to this experience. The survey below was administered online after their first semester. Of the original 18 members, 12 students responded.

Survey Questions

1) Was participating in the Facebook network generally beneficial for you?

Most Beneficial	Beneficial	Ambivalent	Unhelpful	Least Helpful
7 responses	3 responses	2 responses	0 responses	0 responses

2) How beneficial was the Facebook network in your transition from high school?

Most Beneficial	Beneficial	Ambivalent	Unhelpful	Least Helpful

| 7 responses | 4 responses | 1 response | 0 responses | 0 responses |

3) How confident are you in completing the Chemical Engineering program?

Very Confident	Confident	Ambivalent	Unsure	Very Unsure
2 responses	8 responses	2 responses	0 responses	0 responses

4) How helpful is the Facebook network in keeping you in the Chemical Engineering program?

Most Helpful	Helpful	Ambivalent	Unhelpful	Least Helpful
0 responses	1 response	7 responses	4 responses	0 responses

5) What did you like most about the program?

Sample Responses:

- It was helpful to be able to see which freshmen were actually in chemical engineering as it is hard to figure that out in normal math and science classes
- The Facebook program helped bring people together before school started
- The students are easy to talk to, so I feel like I will enjoy the years to come
- I like the close knit feel of the department

6) What did you like least about the program?

Sample Responses:
- Not very many updates and communication
- It could have done more to help give alerts about events like the AIChE meetings
- There were minimal people who I had the opportunity to meet through this.

7) Is there anything you would like to add to the program?

Sample Responses:
- More communication within the group. Also, not just limiting it to JUST freshmen and select upperclassmen
- Require that more freshmen participate in the program

8) Is there anything you would like to remove from the program?

Sample Response:
- Nothing intrinsically flawed

9) Do you have any general comments?

Sample Response:

- Just expand the networking of chemical engineers from Manhattan College both currently in college and outside of college

The survey results were generally positive, but two were particularly notable. Responses from Question Three revealed that most of the students were "somewhat confident" in completing the chemical engineering program rather than "very confident". Although this result is not a terrible outcome, it raised some concern. This may be a function of timing, since these students have not taken any courses specifically designed for chemical engineering majors during their first semester. Consequently, they may not have been able to make a sound assessment on their future in the program. The other notable result emerged from Question Four. Here, students were ambivalent towards the online social network's role in retaining their status as chemical engineering majors. This suggests that actual interactions with the chemical engineering faculty and curriculum may play a greater role in retention than the makeup of their peers. With regards to criticism, the general reaction is that the social network should be larger (Response from Questions 7 and 9). Since the original intention of the online social network was to focus on the high school to college transition, the initial population of students was solely comprised of a small group who declared chemical engineering as their major. Consequently, it is not surprising that a student would perceive that the group was not very large. Before this data was collected, the author independently sought for an additional purpose of the existing network. The end result was to expand the network to include all of the students, faculty, and alumni in the department, thus addressing the concerns raised by the participants.

During the Fall of 2008, the venue for the online social network was changed from Facebook to Ning. There were several reasons which motivated this change. First of all, Facebook lacked the administrative control required to fully control the network. More specifically, the ability of inviting specific members and excluding problematic ones was identified, and foreseen to be a necessity. Second, Facebook groups have a fixed appearance which has little flexibility. One of the benefits of using Ning is that the site may be customized to the particular network being built. Finally, Facebook did not have the feel and appearance of a professional networking venue. Given the multitude of frills and applications that may be added to a person's profile, relationships such as those between a faculty and student may be compromised by diminishing the role of the elder. Moreover, many issues regarding the misuse of popular sites such as Facebook and myspace have been brought to national attention. Consequently, Ning offered the infrastructure for creating the social networking space desired, while still allowing the College to remain in control. Thus, issues such as those experienced by more mainstream sites are not expected. The network is currently in transition, since it is being populated with students, faculty and alumni on a daily basis.

The organization of the network can be seen in Figure 1. Members are assigned into groups based on their year (or potential year) of graduation. All members, irrespective of what group they are in, have access to the main page which is the central location for any important news and announcements pertaining to the Department. Moreover, public communication amongst all network members may occur in this area. If private communication is desired, member-to-member exchanges are permissible, though that privilege may be revoked if an incident occurs. Finally, if a professor wishes to use the network for a class, other ancillary groups may be created which will have their own internal communications.
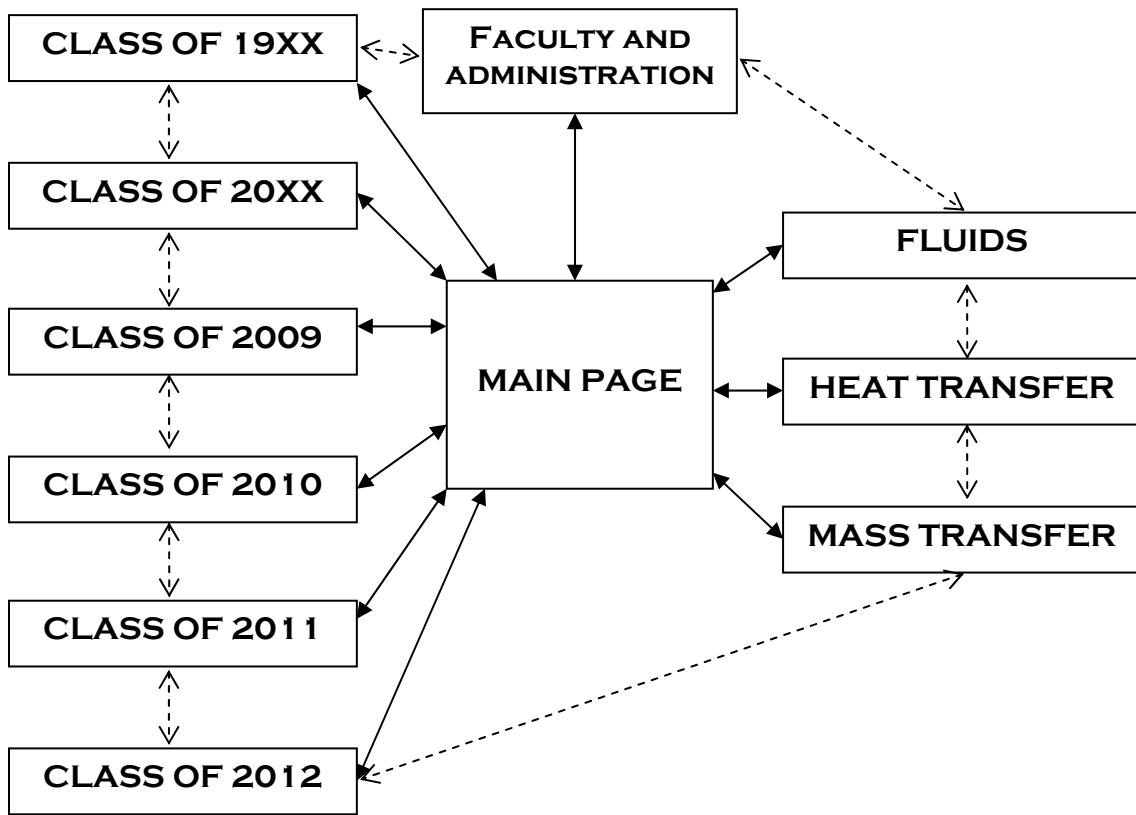
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Figure 1: Organization of the Online Social Network. Members are placed in groups based on the year of graduation. These groups are linked to the main page where announcements and departmental news may be broadcast, and all members may publicly communicate. The ability to have private exchanges among any member in the network is shown by the dashed line.

Future Metrics

Three metrics will be used to assess the efficacy of the online social network on the incoming freshmen. The first will be an academic performance measure based on the final grades received after the first two semesters in college. Briefly, grade point average will be calculated based on the traditional 4.0 scale, and then normalized on the student's high school GPA. This value will be compared with students in prior years who did not participate.

The second metric will be a social performance measure. Here, data from the security department and residence life will be examined for any reported incidence of underage alcohol use, or drug violations among the participants; the two most common offenses among the undergraduate population. These direct measurements will provide an indication of the network's role in reducing or exacerbating bad behavior. In other words, will a sense of community create a sense of comfort for the student so that they do not resort to these activities, or will the network facilitate peer pressure and cause them to make bad choices?

The final metric will be a retrospective evaluation by the participants, similar to the one conducted in this work. Questions will include a series of Likert scale questions that allow a student to assess any benefit derived from the program, as well as feedback on the program itself. Unlike this work where data was collected online, responses will be acquired via an interview from a student coordinator after the participant completes their first two semesters. The reason for this method is that more thoughtful answers will be provided by the participants compared to a survey. Moreover, the student-student interaction would lead to more honest answers compared to an interview conducted by a member of the faculty or staff. Although the data collected is subjective, this indirect measure of student outcomes can help gauge any benefit gained as a result of participating.

Additionally, two metrics will be used to assess the efficacy of the online social network on facilitating department communication. The first is a measurement of "employment conversion" between interactions in the online network versus those occurring face-to-face. Here, a student's ability to acquire job offers by initiating contact through the online network vs other methods (e.g. personal business network) will be compared. Moreover, the efficiency (i.e. number of offers divided by the number of contacts) will be measured for the two cases.

The second metric will be the number of alumni participating in department events. One of the aims of the online social network is to create a community of learners derived from the department. If alumni are better informed on the activities occurring from their alma mater, they may have a better sense of inclusion, and thus more willing to share their time and resources. Most importantly, however, the transfer of information is no longer a one-way flow solely from the department to the alumnus (e.g. department newsletter), but rather a dialogue which actively engages them in participating with the community.

Conclusions and Future Work

Online social networking is a promising method to engage the members of a Chemical Engineering department to create an educational community. It is not difficult to initiate, and is relatively easy to use assuming users possess basic technological competencies. Consequently, replication to other educational institutions will be uncomplicated, although a network infrastructure built in-house (rather than using the external Ning network) may be employed by those with the appropriate means and resources.

Alternative studies using online social networks may be proposed in the future. One hypothesis is that an online social network will play a greater role on freshmen entering larger universities, compared to smaller institutions. Meeting a large and unfamiliar group may be more daunting compared to a smaller number. Thus, providing an opportunity to meet your classmates before arriving on campus may be more beneficial for larger institutions. A second hypothesis is that an online social network will enhance learning by facilitating peer to peer learning *between* institutions. These types of interactions already occur in practice within a school; just look inside any engineering library and watch the groups work together to get their homework done. However, opening a channel between institutions will offer students a different

perspective on a particular concept. Expand this over several institutions, and a student will have the opportunity to obtain multiple views, to complement learning from their home institution.

Although the online social network is still expanding in our Department, its role in facilitating the high school to college transition and department communication warrants further research to fully characterize its mechanics, and evaluate its efficacy.

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