# The Importance of Social Position in E-Learning

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## ABSTRACT

The growth and popularity of online social networks has created new ways of collaboration and communication. College/university students worldwide are particularly enthusiastic users— the vast majority are engaging on a daily basis with online social networks via a computer or mobile device. Likewise, eLearning has been utilized by academic communities to transcend learning across space and time to offer students an alternative to physical classrooms. Today, there is interest from educational institutions and organizations in the potential of social networks and social media to complement or leverage formal educational activities and enhance learning outcomes. Although many studies boast about the benefits of eLearning, users have traditionally complained about usability. This study aims to analyze the frequency of online social networking practices across a broad spectrum of diverse users based on survey responses. The goal of this research is to investigate the frequency of usage of social networking features for consideration in the design of new eLearning solutions.

## Categories and Subject Descriptors

K.3.1 [**Computers and Education**]: Computer Uses in Education – Collaborative learning, *Computer-managed instruction (CMI), Distance learning*

## General Terms

Management, Measurement, Human Factors

## Keywords

E-Learning, Social networking, Social network analysis, Social capital

## 1. INTRODUCTION

Social network sites (SNSs) are new public environments where people can gather through mediating technologies [2]. Social network sites (SNSs) allow individuals to present themselves, articulate their social networks, and establish or maintain connections with others. These sites can be oriented towards work-related contexts or connecting those with shared interests. SNSs support social interaction and enrich existing offline relationships by allowing users to create personal profiles,

exchange messages, identify lists of associates, and participate in discussion forums [2]. Online SNSs support both the maintenance of existing social ties and the formation of new connections. Social ties/connections can be used to identify commonalities between acquaintances and determine individuals' social positions in the larger social context [2]. These aspects of publicly articulated social networks can facilitate formation of additional social connections and social capital leading users to strategically choose who they include in their SNS networks [5].

The increasing movement of joining online communities had already sparked the eLearning community. Many academic institutions worldwide began implementing online course management services such as Blackboard, Moodle, and Discussion Board; however, both faculty and students have traditionally complained about the usability of such sites.

With so many users utilizing online social networks for communicating across distance and time, online social networking environments show great potential for eLearning uses [1, 4, 10, 12, and 14].

The study of Social Network Analysis provides a mathematical graphing process to analyze social networks. Social networks are made up of individuals called nodes which are tied by one or more relations such as interpersonal, economic, or political [11]. When graphed, a dot represents one node or person and lines are formed to represent specific relationships connecting to other nodes. It is through the use of this graphing theory that sociologists measure the distance between two people, their relative centrality, the formation of cliques, and the density of the whole network can be measured [11]. Analyzing a Social Network Service begins with understanding the intricacies of the online users involved. Social Network Services are classified as such because they are digital representations of human social networks.

Social Network Analysis helps to visually capture and calculate what can be gained from being social. Social capital broadly refers to the resources people accumulate through their relationships with others. It is important because it helps to strengthen one's social network since users can draw on resources from other members of the networks they belong, either virtual or actual. Resources include useful information, personal relationships, or the capacity to organize groups [5]. Close, strong relationships ties are called bonding social capital and weaker ties are called bridging social capital. Usually, the weaker ties are severed when resources are not needed anymore. According to Ellison, N et al. [5], Facebook has allowed users to increase social capital.

## 2. E-LEARNING

### 2.1 Values of E-Learning

Today, studies boast the usefulness going online, discussing distant learning approaches, including online course offerings, and blended teaching approaches, such as using online solutions to supplement learning outside of the classroom. The studies have found that they provide an excellent space to post and share information, engage students in self-paced learning, and encourage synchronous and asynchronous learning [6].

### 2.2 Social Position in E-Learning

Throughout the life of a student, educational goals were traditionally achieved through discussions with classroom community members and access to learning resources. Naturally, the means for success in an eLearning environment can be found through the study of Social Network analysis. Wang, L. [13] defines "Learning is not simply a case of receiving independent particles of knowledge, but rather about the active construction of knowledge by social exchange and collaboration between many participants. He elaborates that one's social position within the social network in an eLearning environment greatly influences an individual's or group's achievement. He argues that to be successful in an online course, the student must strive for centrality in the online social network or find a structural hole or "niche" within the community and use the leadership role to exchange resources or control opinion.

The study also defines levels of knowledge building that any educational program should reach and achieve through active participation within the learning social network. At the very basic level is information sharing which involves discussions of observations, viewpoints, questions, and clarifications [7]. Next, information dissonance involves a disagreement posed by an individual or group, questioning, studying the disagreeing position, and proposing new hypotheses. Third is marked by the negotiation of meaning. This level includes negotiating all stances and proposing a compromise. The next level, knowledge modification includes testing and modifying, followed by the constructed knowledge use level, which involves applying the newly constructed meanings [7].

The findings of the study illustrate the significance of social position. The data suggested that centrality in the eLearning social network allowed a student to take charge of the exchange of information and resources. Conversely, students acting upon structural holes were more active in negotiation of meaning and were able to sway class opinion. However, both contributed to higher levels of knowledge building [7, 15].

### 2.3 The drawbacks of Course Management Systems

Traditionally, many students and faculty have complained about course management sites that have been developed and adopted for the purpose to promote eLearning at an academic institution. Miliano, V. [9] writes, "I believe Blackboard is poorly organized, best-of-breed though it may be, and this organization ultimately costs students professors, and the university time and money due to wasted and frustrated efforts to use the system."

A study might elaborate his thought by looking at specific features used among faculty. Their findings suggested that among all of the features Blackboard offered, grade reporting, digital drop-box, discussion groups, and calendar carried low satisfaction scores. The study went on to make suggestions including an increase in training, addition of features such as notifications, and reducing "clutter" to promote ease of navigation [8].

### 2.4 Optimizing the eLearning Experience

As the research suggests, course management systems implemented for eLearning solutions have been viewed negatively by students and faculty because of overall structure of the systems in place. Moreover, achievement relies heavily on self-discipline, self-monitoring, and a willingness to perform [3]; in other words, achievement is based on higher levels of active participation in the exchange of information over the learning social network. Because of the negative connotations brought about by course management systems, Davis, R. and Wong, D. [3] studied what features an eLearning environment would need to promote higher levels of active participation—the optimal eLearning experience.

They defined three core components related to students' optimal experience. The first component deals with system use. Students should log on and believe that the environment that they are working in is useful and beneficial [3]. The second deals with technology acceptance. Here, they argue that users are more likely to accept a system and use it if they believe it to be useful and it is easy to use. The last component is flow which was measured by four indicators: "(1) seamless sequence of responses facilitated by machine interactivity, (2) intrinsically enjoyable experience, (3) accompanied by loss of self-consciousness, (4) and a self-reinforcing quality to the activity" [3].

## 3. METHOD

### 3.1 Research Questioning

Understanding the relationships among people has helped Facebook soar to become the number one social networking service worldwide. These online sites have allowed people to expand their number of bonding social ties, increase the number and sustain bridging social ties, gain social capital, and as a result, increase their access to valuable resources. Research has also proved that active participation within the eLearning social network affects nodes' social positions and, accordingly, increases collaboration and cooperation—two key ingredients for higher levels of knowledge building. However, course management services and other eLearning environments tend to lose effectiveness through usability issues, lack of flow, and lack of interesting content. The goal is now to bridge the findings of online social networking with the findings of eLearning networks.

The survey created to accomplish the goal of relating online social services to eLearning solutions looked at how the online social services are used and how frequently features are utilized. The results could show what features of an online social networking service could be utilized in future eLearning environments. Frequency will be measured in a scale of 0 to 9, where 0 designates not utilizing a feature and 9 designates many times per day. Instead of numbers, words will help the users understand the rates in which they use features: Many times daily (MTD) (9), Few times daily (FTD) (8), Daily (D) (7), Few times weekly (FTW) (6), Weekly (W) (5), Few times monthly (FTM) (4), Monthly (M) (3), Few times yearly (FTY) (2), Yearly or less (>Y) (1), N/A (0). The survey would need to capture:

| Surveyed Information: | Rationale: |
|---|---|
| • the types of users<br>  ○ age<br>  ○ skill level<br>  ○ profession | This data will allow for analyzing school age, college age, non-traditional, and graduate students, as well as, how technical aptitudes affect social practices online. |
| • the duration online services have been used | This data will allow for analyzing the correlation between time and amount of utilization. |
| • log-in frequency<br>• accessing networks from which technologies: computer or mobile | This data will allow for analyzing how often users check their online social networks. It may also be used to determine needs for mobile application. |
| • individual maintenance practices<br>  ○ updating profile<br>  ○ status<br>  ○ posting media<br>  ○ browsing users' content<br>  ○ expressing interest in content "liking"<br>  ○ using applications<br>  ○ adding other users as "friends"<br>  ○ composing blogs<br>  ○ utilizing searches to learn about unknown users | This data will show how often users initiate socialization. |
| • social interaction practices<br>  ○ commenting on other users content<br>  ○ tagging users in content<br>  ○ expressing interest in others' content "liking"<br>  ○ instant/private messaging<br>  ○ inviting/responding to events, groups, applications, etc. | This data will show how often users respond to other users who have initiated means to socialize. |
| • interactions with social network site features that encourage socialization<br>  ○ added recommended friends or pages<br>  ○ browsed, clicked, or rated targeted ads<br>  ○ seen/utilized "like" or sharing links on other websites | This data will show how effective social networking sites, specifically Facebook, are at studying users' interests and relationships with other users and using the data for attempting to increase socialization. |

## 3.2 Procedures and Instrument Design

A free online survey housing site was used to design the survey and collect responses. The rationale to utilize such a service was that the service provided a central location for entering data, limited the amount an individual could access the survey to one time, generated a simple link that could be posted on social networking sites or emailed and calculated responses as they were received.

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## 4. RESULTS

The survey generated 149 responses, of which 0.7% were below age 18, 14.3% were ages 18 – 25, 38.8% were ages 26 – 30, 22.4% were ages 30 – 35, and 23.8% were above 35. Out of all ages of responders, only 12.9% were solely students; the survey did not capture users that worked and took educational courses. Although the survey does not give an accurate picture of users as students, the survey can be used for the frequency of utilization of an online social network.

In terms of skill use, nearly half of the responders considered themselves to have a mid-range of skills in terms of technology use, and 1.4% were beginners, 15.8% are somewhat skilled, 32.2% were above average in skills, and 10.3% considered themselves experts. In terms of years of membership, beginners (B) averaged 3 years, somewhat skilled (SS )averaged 3.73 years, mid-range skilled (MS) averaged 5.07 years, above average skilled (AS) averaged 6.17 years, and experts (E) averaged 5.29 years. The total average of membership is 5.24. Tables 1 and 2 show the log-in frequencies based on the skill level of the responders.

### TABLE 1. Log-in Frequency, Computer

| % | B | SS | MS | AS | E |
|---|---|---|---|---|---|
| MTD | 0 | 28.6 | 45.6 | 58.3 | 85.7 |
| FTD | 0 | 23.8 | 19.3 | 22.9 | 0 |
| D | 100 | 28.6 | 17.5 | 10.4 | 0 |
| FTW | 0 | 14.3 | 12.3 | 6.3 | 0 |
| W | 0 | 4.8 | 0 | 2.1 | 0 |
| FTM | 0 | 0 | 5.3 | 0 | 0 |
| M | 0 | 0 | 0 | 0 | 0 |
| FTY | 0 | 0 | 0 | 0 | 0 |
| >Y | 0 | 0 | 0 | 0 | 7.1 |

### TABLE 2. Log-in Frequency, Mobile Device

| % | B | SS | MS | AS | E |
|---|---|---|---|---|---|
| MTD | 0 | 33.3 | 42.9 | 61.7 | 60 |
| FTD | 100 | 19.0 | 14.3 | 14.9 | 0 |
| D | 0 | 9.5 | 7.1 | 6.4 | 13.3 |
| FTW | 0 | 4.8 | 1.8 | 6.4 | 13.3 |
| W | 0 | 0 | 0 | 2.1 | 0 |
| FTM | 0 | 4.8 | 1.8 | 0 | 0 |
| M | 0 | 0 | 0 | 2.1 | 0 |
| FTY | 0 | 0 | 1.8 | 0 | 0 |
| >Y | 0 | 28.6 | 28.6 | 6.4 | 13.3 |

The tables suggest that the skill level of the users does not have an effect on the frequency that a user would log in. Users still favor computers over mobile devices; however, there are still more users that log-in Daily or more on either a computer or mobile device across all skill levels than those who log-on less frequently.

When analyzing the actual practices of responders, Figure 1 shows the socialization practices of users.
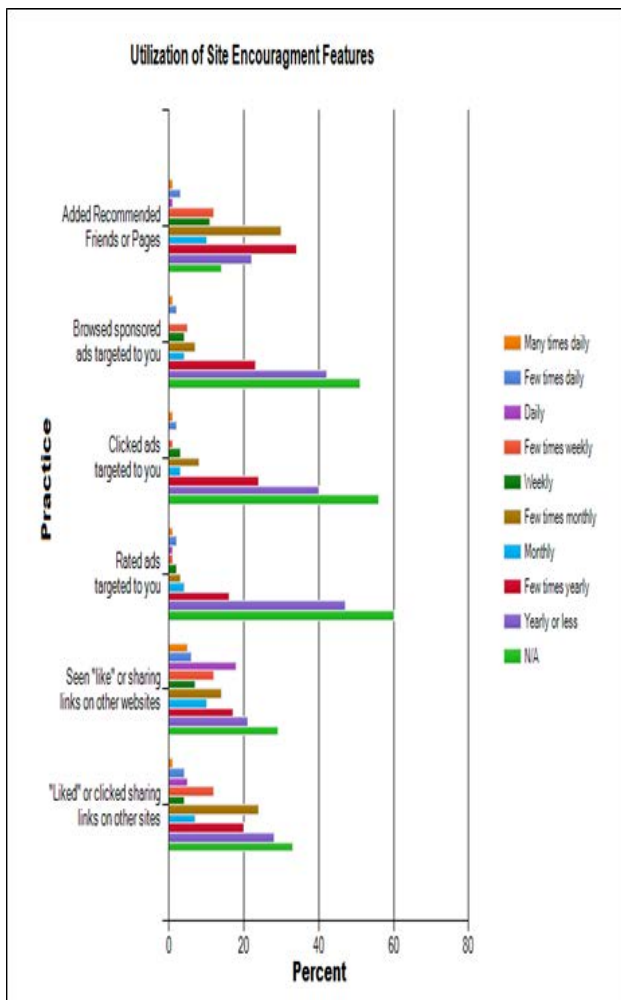
**Figure 1. The illustrated chart shows how users respond to attempts by the service to encourage capture their interests.**

The average amount of accumulated social capital is 267.49 "friends." Slightly over half of all responders reported that they have added "friends" they had never met offline, suggesting that online social networks have been used to increase bridging social ties.

## 5. CONCLUSION

The survey data shows that online social networks are very frequently utilized to connect and communicate among users. Discussion and collaboration are staples of eLearning course management environments. The majority of users are practicing such activities weekly or more frequently on online social networking sites. One concern studied by research is how to best optimize eLearning environments to increase activity of students and deepen knowledge building. The structures and features of online social networks show promise when improving eLearning environments.

## 6. REFERENCES

[1]  T. Arndt, and A. Guercio, "Social Network-Based Course Material Transformations For A Personalized And Shared Ubiquitous E-Learning Experience," 5th int. conf. on Mobile Ubiquitous Computing, Systems, Services and Technologies (UBICOMM, 2011), pp. 218-222, 2011.

[2]  D. M. Boyd, and N. B. Ellison, "Social network sites: Definition, history, and scholarship," Journal of Computer-Mediated Communication, Volume 13, Issue 1, pp. 210–230, October 2007.

[3]  R. Davis, and D. Wong, "Conceptualizing and Measuring the Optimal Experience of the eLearning Environment," Decision Sciences Journal of Innovative Education 5, 1, pp. 97 – 126, 2007.

[4]  M. Derntl, and S. Graf, "Impact of Learning Styles on Student Blogging Behavior," in Ninth IEEE International Conference on Advanced Learning Technologies (ICALT), IEEE Press, pp. 369-373, 2009.

[5]  N. Ellison, C. Steinfield, and C. Lampe, "The Benefits of Facebook "Friends:" Social Capital and College Students' Use of Online Social Network Sites," Journal of Computer-Mediated Communication 12, pp. 1143-1168, 2007.

[6]  D. Fletcher and A. Ford, "Friends without borders," Time 175, 21, pp. 32 – 38, May 2010.

[7]  C. Gonzalez, "What do university teachers think eLearning is good for in their teaching?," Studies in Higher Education 35, 1, pp. 61 – 78, 2010.

[8]  R. Meuth, D. Hill, and R. Howell, "A Faculty Usability Survey of the UMR Blackboard Learning System," http://www.irontaco.com/Documents/BlackboardUsabilityReport.pdf, 2006.

[9]  V. Miliano, "Usability Analysis and Redesign of Blackboard," http://hirevito.com/oldportfolio/blackboard/, 2005.

[10] H. Roreger and T. C. Schmidt, "Socialize Online Learning: Why we should Integrate Learning Content Management with Online Social Networks," in Proc. of IEEE Intern. Conf. on Pervasive Computing and Communication, IEEE Press, pp. 685-690, March 2012.

[11] H. Sozen and M. Sagsan, "Social networks versus technical networks: How different social interaction patterns effect information system utilization in the organizations," Journal of US-China Public Administration, 2009.

[12] J. Vassileva, "Toward Social Learning Environments," IEEE Transactions on Learning Technologies, vol. 1, no. 4, pp. 199-214, 2008.

[13] L. Wang, "How Social Network Position Relates to Knowledge Building in Online Learning Communities," Frontiers of Education in China 5, 1 pp. 4-25, 2010.

[14] B. Wu, D. Zhou, F. Fu, Q. Luo, L. Wang, and A. Traulsen, "Evolution of Cooperation on Stochastic Dynamical Networks," PLoS ONE 5, June 2010.

[15] Y. Yeh, "Analyzing Online Behaviors, Roles, and Learning Communities via Online Discussions. Educational Technology & Society 13, 1, pp. 140 – 151, 2010.