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Collaboration and the use of Mobile Devices in Higher Education

In order to engage college students you want to use arenas they are comfortable within and as educators we know a lot of students are already familiar with iPods so to take advantage of those technologies iphones must be utilized (May 7,2009, Missourian). Naas (2009) argues, “In the not too distant future, smartphones will be the primary computing device most of us rely on for our day to day personal computing” (p.1). These new technologies enter the educational setting with great promise and initial enthusiasm for a positive influence on classroom instructional practices (Reiser, 2007). If today’s smartphones have the prospective to improve instruction and learning, then the essential question should be about how the technology is being used in collegiate environments. What is advocated by educators for the effective use of such technology is the need for change in the learning paradigm to utilize the uniqueness of new communications technology as a tool of communication and design to learn with technology (Reigeluth & Joseph, 2002; Salomon 2002; Salinas 2008). Moreover Merrill (2002) has noted that simply providing iphones is unlikely to provide a significant increase in effective use of instructional technology, unless there is a significant change in the way instructors do instruction. To ensure the successful use of instructional technology in higher education technologically mediated teaching and learning experiences must also be congruent (Garrison, n.d.). Yet, even with the most sophisticated technology currently in existence, without good pedagogy, education will be hampered nonetheless; researchers have only begun to explore the use of the iphones as an educational tool. Moreover, since collaboration is an important part of

the educational process (Bruffee, 1999) of any learning community and, given that communication is necessary within a learning environment, collaboration has been chosen as the theoretical lens to view learning using iphones. The questions guiding this inquiry are: How does the collaboration process contribute to learning using iphones? And what are the perceptions of the students regarding the effectiveness of the collaborative process using iphones?

Conceptual Underpinnings

Collaboration

Why is the occurrence of collaboration using iphones important? According to Bruffee (1999), conversation must exist for re-acculturation to occur. Without re-acculturation, the student will not gain the essential vocabulary that is critical to the educational process. By examining conversations using smartphones, it is possible to check for the existence of collaboration. Consequently, as Bransford et al. (1999) noted, “It is easy to forget that student achievement in school also depends on what happens outside of school” (pp. 16-17). By recognizing the acculturation of the learner (Bruffee, 1999), it is possible to create the new community and conversation required to support the acquisition of new knowledge. Moreover, Bruffee (1999) expanded this concept of learning as a collaborative process by casting the process of learning as the re-acculturation of the learner. This learning process is, by its very nature, a collaborative process (Bruffee). Furthermore, in this re-acculturation process, Bruffee (1999) argued that the learner must gain a new vocabulary to participate within the collaborative community. He noted that most have experienced the feeling of not being a member of the community in which they find themselves. Without the proper vocabulary to express ourselves effectively, he postulated that individuals are often unable to participate, let alone understand the

community with which they find themselves. In effect, “our worlds were closed by walls of words” (Bruffee, 1999, p. 6). Thus by distributing knowledge and authority amongst themselves, a group can become a collaborative community (Bruffee).

Consequently, in defining what collaboration includes, Crook (1996) listed three basic cognitive benefits of peer collaboration: articulation, conflict, and co-construction. Crook noted that peer collaboration causes students to be more explicit in the public declaration of their ideas. When a student states their concept, they must be clear and concise in their opinions and interpretations. Students will inevitably be faced with conflicting interpretations causing conflict to arise. In the resolution of this conflict, students must defend their interpretation and reflect on their stance. Borrowing from Vygotsky (1978), Crook’s co-construction is the process of students constructing shared knowledge by sharing and building upon each others’ ideas.

Furthermore, Dede (2005) articulated that “at present, social groupings depend on co-presence in physical space (roommates, classmates). Collaboration depends on shared physical presence or cumbersome virtual mechanisms. In fact Dede (2005) postulated, “In the future, students will participate in far-flung, loosely bounded virtual communities (independent of cohabitation, common course schedules, or enrollment at a particular campus)” (p. 10).

Use of iPhones

Since Bruffee (1999) made a strong case that it is through conversation and collaboration that all learning takes place, whether it is internal or external, it is essential that the use of iPhones support collaboration effectively. While others argue that in and of itself collaboration is not “efficient or inefficient” (Dillenbourg, Baker, Blaye, & O'Malley, 1996, p. 197), Wulff,

Hanor, and Bulik (2000), noted that the instructor can aid the development of collaboration within a learning environment by “redistribut[ing] learning control and power by supporting and/or developing interaction-exchange formats, such as synchronous and asynchronous chat sites and display rooms to cultivate social and individual presence” (Wulff, Hanor, & Bulik, p. 150) . Karakaya and Enyapılı (2007) argue to collaborate in an educational setting there must be appropriate development of pedagogy for the use of these technological tools. Furthermore, they noted, “interdisciplinary tensions that may occur during the collaboration should be closely monitored and solutions geared towards the elimination of these tensions need to be integrated into the design curriculum” (p. 115).

Methodology

Population and Sample

The population from which data was derived included all faculty, staff and students using mobile devices at Abilene Christian University. The number of mobile devices in use at the time of data collection exceeded one thousand eight hundred (1,800). For the survey portion, 256 freshman were surveyed, (128 female, 134 male) approximately twenty-five (25%) of the freshman population. Interviews were conducted with thirty-one students, some of whom did not have mobile devices.

Data Collection

Three methods of data collection were used. First data were gathered from all usage of a special website specifically configured for mobile devices. Second data were gathered from a seven question likert type survey. Surveys were identified as efficient approaches to

systematically obtaining uniform information from a geographically dispersed group of study participants. One advantage of questionnaire formats was the facility with which data could be disaggregated to examine categories of interest (Thomas & Brubaker, 2000). Other advantages of questionnaires cited in the literature were they allowed for multiple assessments, preserved anonymity, and provided a relatively unobtrusive method to assess change over time (Bernhardt, 1998). To further answer the research questions and to triangulate the data gathered from the website and the survey, interviews were conducted as a strategy to gather further descriptive data. Interviews were conducted with open-ended questions to guide the responses.

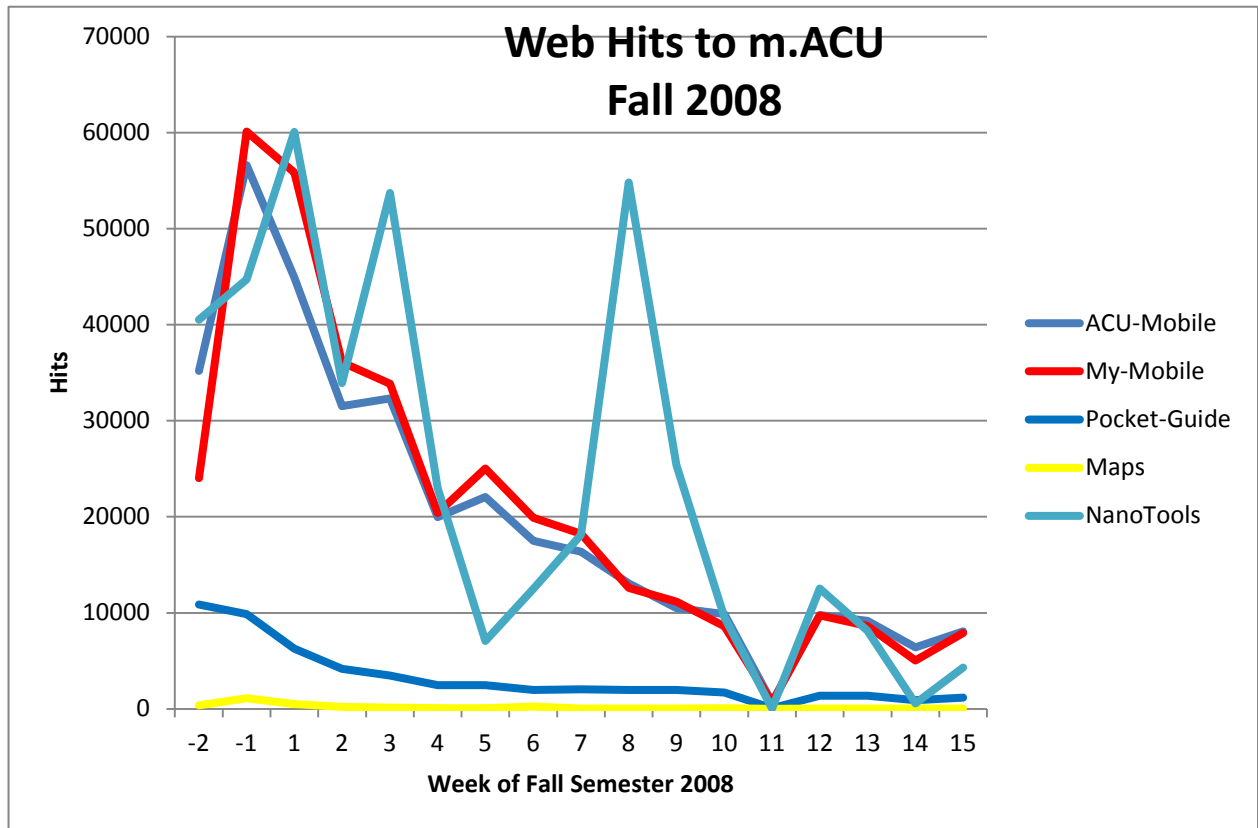
Data Analysis

Data gathered from the website and surveys were compiled and analyzed using SPSS Version 13.0 for the quantitative data. Qualitative data from the surveys and interviews were classified, axial coded, and summarized. For the purposes of this research, web analysis consisted of how many times users made use of several key parts of the mobile device website. There were five (5) primary areas analyzed: The open-access page with general information (ACU-Mobile), a user-specific site that contained specific information for the user (classes, calendar, financial information, campus events, etc), a pocket-guide with area information, campus and area maps (including a tool that would show the shortest path from one location to a specific building), and Nanotools. Nanotools are small web-based applications that allowed faculty and students to conduct surveys and classroom-based, non-graded, quizzes.

Discussion of Findings

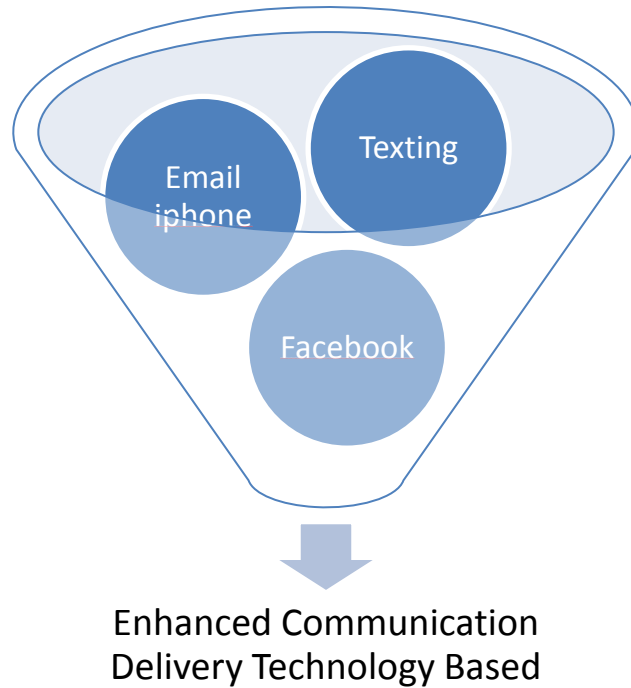
According to web data, academic use is being made of mobile devices (358K hits to My-Mobile, 409K uses of Nanotools during fall semester). This amounts to a mean of over 12 uses of My-Mobile and over 14 uses of Nanotools per user/week through-out the fall term. While

there was a great deal of usage at the beginning of the semester, all of the resources saw a decline in usage as the term drew to a close.

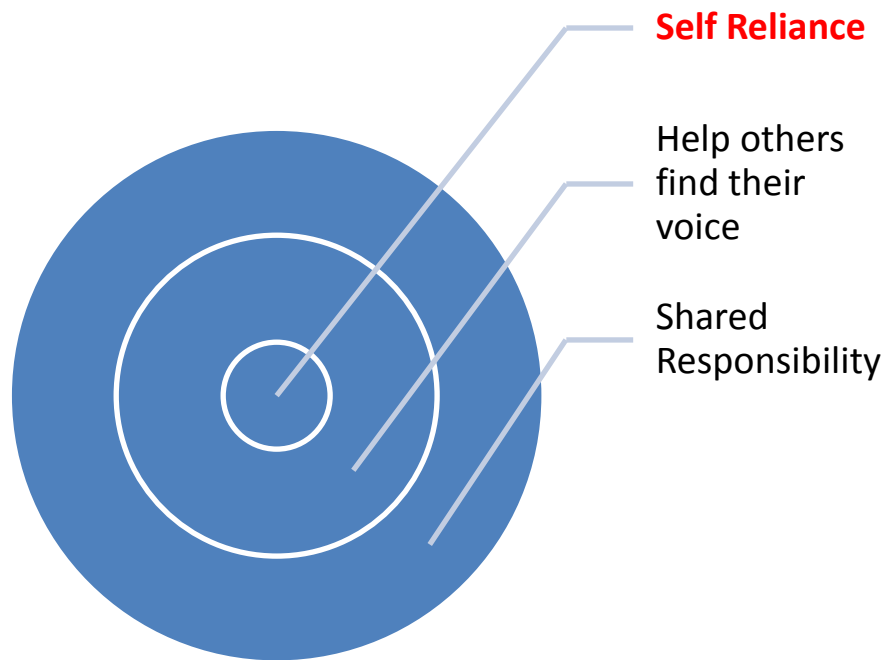


Within the survey it was found that 95.4% of respondents have contacted others for help with academic work. Only 4.6% of those participating in the survey reported not using their mobile device to gain assistance in their academics. The researchers found that there was a consensus between men and women regarding the types of communication that they had with each other.

They preferred texting, iphone emailing, and Facebook to face to face communications.



The respondents to the survey showed that 95% of respondents were contacted by others for help with academic work. Only 5% of respondents reported not having been contacted by classmates asking for assistance. From the responses it was apparent that both men and women were developing self-reliance by helping others find their voice and in sharing responsibility regarding the assignments.



Implications

This research has confirmed that potential of the use of iphones as an instructional tool in a college setting. The following conclusion based on the qualitative study findings was suggested from the data set: The use of technology increased collaboration among college student through the use of mobile devices that enhanced communication, content accessibility and student self reliance. Thus as mobile devices continue to permeate campus environments; they do tend to increase collaboration and communication between students. If colleges and universities embrace these devices and use them to improve educational opportunities, students and faculty have far great opportunities to improve communication, collaboration and learning. Further, the findings of this research directly impact the traditional educational model of today and can help to remove reservations regarding the use of alternative technology based

instructional strategies for the future. Consequently as technology continues to advance, it can serve as a catalyst to contribute sound educational experiences in a myriad of settings. Within this study, the focus has been to examine one aspect of the learning process, collaboration, using iphones . As Bruffee (1999) has made a compelling argument that it is through conversation and collaboration that all learning takes place, it is essential that the use of iphones be design to support collaboration effectively.

References

- Bernhardt, V. (1998) *The school portfolio: A comprehensive framework for school improvement*. Larchmont, N.Y: Eye on Education.
- Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.). (1999). *How people learn: brain, mind, experience, and school*. Washington, D.C.: National Academy Press.
- Bruffee, K. A. (1999). *Collaborative learning: higher education, interdependence, and the authority of knowledge* (2nd ed.). Baltimore: Johns Hopkins University Press.
- Crook, C. (1996). *Computers and the collaborative experiences of learning*. London: Routledge.
- Dede, C. (2005). Planning for neomillennial learning styles. *Educause Quarterly*, 1, 7-12.
- Dillenbourg, P., Baker, M., Blaye, A., & O'Malley, C. (1996). The evolution of research on collaborative learning. In E. Spada & P. Reiman (Eds.), *Learning in humans and machine: towards an interdisciplinary learning science* (pp. 189-211). Oxford: Elsevier. Retrieved November 1, 2004, from http://tecfa.unige.ch/tecfa/publicat/dil-papers-2/Dil_7_1_10.pdf
- Garrison, D. R. (in press). Communities of inquiry in online learning: Social, teaching and cognitive presence. In C. Howard, et al. (Eds.), *Encyclopedia of distance and online learning*. Hershey, PA: IGI Global.
- Karakaya, A. F. & S, Enyapılı, B (2007) Rehearsal of professional practice: Impacts of web-based collaborative learning on the future encounter of different disciplines. *International Journal of Technology Distance Education* 18(1)p.101–117

Merrill, M. D. (2002). Effective use of instructional technology requires educational reform. *Educational Technology*, 17(2), 13–18.

Missourian (May 7, 2009) School of Journalism to require iPod touch or iPhone for students.

Naas, B. (2009) *Will the iPhone be a part of the future classroom?* Retrieved July 1, 2009

<https://blog.dyknow.com/blog/teaching-learning-strategies/0/0/will-the-iphone-be-a-part-of-the-future-classroom>

Reigeluth, C. M., & Joseph, R. (2002). Beyond technology integration: The case for technology transformation. *Educational Technology*, 17(2), 9–12.

Reiser, R. A. (2007). A history of instructional design and technology. In R. A. Reiser & J. V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (pp. 17–34). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.

Salinas, M. F. (2008). From Dewey to Gates: A model to integrate psychoeducational principles in the selection and use of instructional technology. *Computers & Education*, 50(3), 652–660.

Salomon, G. (2002). Technology and pedagogy: Why don't we see the promised revolution? *Educational Technology*, 17(2), 71–75.

Thomas, R. M. & Brubaker, D. L. (2000) *Theses and dissertations: A guide to planning, research, and writing*. Westport, Connecticut: London: Bergin & Garvey

Vygotsky, L. S. (1978). *Mind in society: the development of higher psychological processes*.

(Cole, M., John-Steiner, V., Scribner, S., & Souberman, E., Eds.). Cambridge: Harvard UP.

Wulff, S., Hanor, J., & Bulik, R. J. 2000. The roles and interrelationships of presence, reflection, and self-directed learning in effective world wide web-based pedagogy. In R. Cole (Ed.), *Issues in web-based pedagogy* (pp. 143-160). Westport, CT: Greenwood Press.