Social Media Theory and Practice: Lessons Learned for a Pioneering Course

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Abstract – **Social media are more than just a buzzword or an interesting phenomenon to our teenagers, they are a way of life. Research shows that active participation on sites like Facebook, communicating via texting and chat programs, and creating blogs are everyday occurrences for a generation of students. Yet these same students do not consider the impact of these tools on their lives for good or ill. Furthermore, they have not seriously considered the design, development and application of these tools; either as support systems throughout their professional careers or as a field in which they could find employment. This paper describes a course created to examine design and use of social media while evaluating the use of CMS and social media tools as part of the course itself.**

Index Terms - Social Media, Social Computing, Courseware, Course Management Systems

INTRODUCTION

According to recent studies undertaken by the Pew Internet and American Life Project, the majority of today's youth are living an intensively connected lifestyle. The Pew/American Life studies show that 94% percent of pre-college youth ages 12 through 17 use the Internet and/or email [1]. Approximately 89% of them access the Internet from home and 77% percent get access from their school [1]. At home, many of them have their own computer that is separate and distinct from the "family" pc providing them individual access to the online world [1]. Cell phones provide access and communication with friends and family, not only via telephony but via a wide range of social media applications including, but not limited to: texting, Internet access, and photo sharing capabilities [1-3].

Teens use social media platforms for more than simple voice communication. Social media are becoming a primary outlet and expressive written medium via web pages, blogs and more [3]. Beyond the written word, social media also provide a platform for teen expression in visual arts via art, photo and video sharing sites. This opportunity to produce and shares across all the arts of expression has fueled rapid growth in teen use of social media. [3]. Pew reports that teen use of blogs doubled from 2004 through 2006 [3]. In addition, the report showed usage differing across the genders; with girls most often contributing to blogs and boys most often participating in content sharing [3].

While students pursuing college careers are fluent in the use of these new social media tools there is little academic opportunity for them to examine how they use them in both personal and professional contexts, or at least that was the case in 2007 when the NSF approved the authors' proposal to teach *"Social Media Theory and Practice"* the first course of its kind. The proposal covered not only the design and delivery of a course that examined social media but the analysis of student usage of social media and courseware/course management platforms as part of the course. The proposal was developed to address both sets of applications to compare and contrast their features and usage since college students are some of the most active users of commercial social media tools and the primary audience for courseware/course management platforms.

DESIGNING THE COURSE

The course design was developed with a few basic tenets in mind. First, the developers of the course decided that students should be exposed to a multidisciplinary approach to social media systems and their uses. This began as a practical decision as the course was created and delivered by three faculty with diverse backgrounds in computing, media theory and communications. The broader impact was that social media could be examined as aspects of media ecology, communications, web technologies, usability, aesthetics, pop culture, and behavioral practice.

Second, the authors decided to structure the course around two different organizational contexts [4]. The first context was to evaluate social media based upon technology, social capabilities, and system usability. The second context was to structure materials based upon the literature from the Computer-Supported Collaborative Work (CSCW), Computer Mediated Communication (CMC), and Computer-Supported Collaborative Learning (CSCL).

I. Technology, Social Capabilities, and System Usability

The first organizational context examines the relations between the technology that enables collaboration, the social capabilities afforded by the system, and the overall usability of the system.

The technical dimension addresses the hardware, software, and network needs of the system. Such concerns include the building blocks of an online or connected experience, such as browsers, rich internet application frameworks, server-side scripting languages, databases, and communication protocols that enable collaboration. The

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technical dimension also has to allow for connection-based messaging, handling issues such as regulating connection pools, managing sessions, handling terminated and disrupted communications, and synchronization issues. Furthermore, the technical characteristics have to provide mechanisms for everyday issues such as searching, filtering, access control, security, and persistence.

Social capabilities determine how well the system can support individual and organizational interactions [5]. At one level, social capabilities allow us to determine how communication takes place, whether the focus of communication is around a concept or idea or whether communication is anchored by a tangible artifact. The social dimension also defines what users know about themselves and their relation to their communities [6-7]. Social capabilities address access and control at the individual and group levels as well as issues such as reputation, role, tasks and status [6,8-10].

System usability speaks to whether a system satisfies the requirements of the end user [11]. Usability ranges from aesthetics and guidelines to more formal qualitative and quantitative methods [12-14].

II. CSCW, CMC, and CSCL

The second context is to examine social media from three differing scholarly perspectives: CSCW, CMC, and CSCL.

The CSCW literature examines collaborative interaction from the perspective of individual and organizational activities [15-17]. The approach, based predominately in the activity theory literature [18-22], stresses the understanding of the relationships between tasks, roles, and people as well as techniques for minimizing interference by a system and maximizing productivity over a particular process. The CSCW approach also examines flexible conflict and cooperative management, dynamic group configurations, and appropriate interconnections for particular tasks and activities.

The CMC literature places emphasis upon communication processes first and technology second. Issues that identify the communication approach include the way we accommodate for and replace social cues often present in face to face communication. The CMC literature addresses issues such as identification and identity, trust, reputation, awareness, presence, and personal investment in a community.

The CSCL literature examines interaction as part of a learning process. The learning perspective greatly differs from the work and mediated communication perspectives as learning does not often make the process easier, but establishes the mechanisms from retention and recall. CSCL literature establishes that construction of systems should be based upon relevant learning theories and models. As such, CSCL-based systems are designed around themes such as cooperative learning [23], constructivist learning [24-27], and critical thinking [28]. Furthermore, CSCL approaches incorporate scaffolding and assisted learning into systems design [29-31].

III. Course Topics

From the organizational contexts described above, the authors proceeded to develop the themes to be covered in the course. The course was designed to appeal to both computing as well as liberal arts students with the goals of improving technology education by introducing the topic of social computing, instructing undergraduates in how to leverage social media skills in the workplace and to prepare undergraduates for positions in industries working with or designing social media.

While the course themes were being developed and the example platforms were being selected, the designers used the organizational contexts informed the choices they made. Faculty ensured that the scholarly and academic theories that supported the themes, the technical implementations chosen, and the features they provided to users were addressed within lecture and highlighted during the hands-on sessions. Major themes for the course included:

- "What are Social Media?" - The definition of the term "social media" as well as the systems that embody social media principles of social media use. Also, this theme examines common contexts for social media use.
- "Self-Identity" and "Personal Awareness" – Examination of the sense of self and perception of self by others. Awareness principles include the cues responsible for monitoring events and status within a system.
- "Space Versus Place" and "The Structure of Networking Communities" - Compare the constructs that support communication as well as the appropriateness of action within a place.
- "Awareness" and "Notification" – Examine mechanisms by which information is provided to the user and how such information is prepared and delivered
- "Ethics", "Social Norms", and "Trust Online" – Examine issues of trust, privacy, and appropriateness in an online environment.
- "Social Media and Careers" was addressed from several perspectives including how to use Social Media tools professionally to build and enhance careers, what different industries had social media components (entertainment, marketing, etc.) and what specific career options there were in designing, developing and managing social media applications.

IV Course Delivery

The course was cross-registered for either Information Technology or Communications students. It combined two hours of lecture on a given topic with two hours of hands-on instruction around the topic of the week. This was followed by in-lab tutorials regarding the use and considerations of social software.

The course lasted for ten weeks. Over the course, students used different courseware and course management systems commonly found in academic environments. By

default, all students matriculated at the institute have access to the "myCourses" system, a customized course management system developed by Desire2Learn [32]. The myCourses system has many of the features expected in institutional systems including integration with institutional records, content areas for course materials, syllabi, areas for threaded discussions, student drop boxes, event notification, as well as areas for online quizzes and tests.

Along with myCourses, students were exposed to a number of other course management systems that had features related to social media systems. Each student was exposed to each new system over a three week period. The progression of the exposure included account setup, common functions and operations, guided activities, task-based homework activities, advanced features, extensions and expansions, as well as large system organizational issues when using a particular system.

The systems selected for the course were phpBB3 [33], Joomla [34] and Moodle [35]. The first system, phpBB, is primarily a threaded discussion forum, but through a series of expansions provides additional capabilities mainly focused in the areas of discussion management and social indicator systems. The second system, Joomla, is primarily for content management. Although Joomla does not natively support threaded discussion, the popular Fireboard [36] extension provided the appropriate functionality. The third system, Moodle can be described as an open source content management solution for courses similar to commercial systems. All three systems were installed to provide an overlapping set of user notification and ratings, discussion, search and filtering where possible.

In order to track and unify information collected across all three systems, a data collection and presentation instrumentation system was developed. Data collected included logins and logouts as well as information such as posts read, posts submitted, replies read, replies submitted, and quoted responses. In addition, the collection system tracked profile data such as avatars, bookmarks, awareness system use, notification system use, ranking and karma systems, as well as personal statistics.

COURSE CHARACTERISTICS

Over the duration of the course, the authors found out many things about the students and their perceptions of social media.

I Demographics

The course began with 35 students initially enrolled. The course was offered as a junior or senior elective for students. Student could either use the course to satisfy an upper-level elective through the Information Technology Department or could register the course as a Communications Department elective through the College of Liberal Arts.

The class was subdivided into 28 students registered through Communications and 7 registered through Information Technology.

The gender subdivision was better balanced, with 21 male students and 14 female students.

Students registered from 20 majors classified by institute areas of Computing and Information Sciences (31.5%), Imaging Arts and Sciences (17.1%), Business (17.1%), Applied Science and Technology (14.3%), Liberal Arts (11.3%), National Technical Institute for the Deaf (5.8%), and Engineering (2.9%).

II Social Media User

During the first week of the course, students were provided a survey designed to measure their experience and expectations of social media systems.

The survey showed that half of the class (50%) indicated that they had used social media for a period of one year or greater, The survey revealed that while almost all students utilized social media in a social "friends and family" way (94.4%), only about half responded that the used social media for profession collaboration or communication (55.6%).

Unfortunately, only 16.7% of the class responded that they actively participate in social media systems, often choosing to be an observer or an infrequent contributor beyond person to person functions. As for use of social media in a learning environment, 61.1% of students agreed that social media should be used in an educational context, 30.6% provided neutral responses, and 8.3% disagreed.

III Gender Differences

As part of the course, the authors examined issues of gender with respect to postings in the social media software systems. Although male students tended to write longer responses and submitted postings with more words, the differences among students in the first phase of analysis was negligible in categories such as first response, tone of response, frequency of response, quality of response, and timeliness of response.

IV Preferred Systems

Students were also asked questions regarding the social media software systems they used on a daily basis. The question was designed to determine what students considered social software as well as a means of determining the actual systems they used.

At the highest percentage (88.8%), students considered social network systems such as Facebook as the most recognized and used social software. Similarly, email, asynchronous messaging, and chat systems were recognized at above the 80% mark.

Blogs and forum software were recognized with lower frequency responding at 76.5% and 67.6% respectively. From that point, lower percentages were recorded with systems such as status and personal awareness software, course management systems, professional network maintenance, MMOs and shared games, text messaging,

web distribution, and finally RSS feeds and information aggregation.

Further survey showed that despite misclassification, students utilized systems that were not properly identified as social media from the beginning.

V Student Satisfaction

Over the course of the quarter, students provided anecdotal feedback relating to their experiences regarding social media aspects of course management systems. As a result, the authors tracked user satisfaction through a variety of means.

First, the authors examined a sample of 500 messages to determine the proportion of messages related to system satisfaction. Results demonstrated a 9.2% incident of system dissatisfaction. The individual messages classified into problems related to the following areas: user interface (52.1%), feature identification (34.6%), administration and maintenance (10.9%), and personal issues with another student (12.9%). An end-of-course survey showed 72% of the students did not think that the course management systems used in class had the same qualities of those systems used for personal communication.

As such, the authors distributed a final survey to determine what features students expected to find in course management systems to make them comparable to those systems used for their social interactions. In all, 25 of the course's students responded to the free-form survey. The responses were analyzed and classified by three external evaluators and ranked in order of category frequency.

The analysis showed that the most frequent request was for better and more flexible user interfaces (10 responses), followed by a request for better private messaging functions between students and faculty (7 responses). Also highly reported was the need for better notification and awareness mechanisms (7 responses) as well as better thread organization systems (6 responses) and user-controlled interface customizations (6 responses). Students also cited better profile management (5 responses), games and activities (3 responses), customizable groups (2 responses) and better search tools (2 responses).

VI Careers

An initial survey demonstrated that most of the students in the class did not understand the full extent of jobs and careers related to social media. Students were able to discuss in broad terms that someone was needed to create the technology and that people had careers administrating such systems. They also demonstrated knowledge that online advertisement revenue could be tied to such systems but did not know the specifics of how such mechanisms could be implemented. As part of the course, students were given a number of case examples of how people were being "successful" with social media including its construction as well as information delivery. At the end of the course, students had a broader view of the field and potential careers.

CONCLUSIONS

At the level of the course itself, we have learned that there is indeed a need for formal education of students on the professional use, design and implementation of social media systems. These will increase student awareness of the range of applications that fall under the umbrella of the term and of their potential for use as tools in a professional application as well as a personal one. The next generation of social media systems will require stronger technology interconnections as well as deeper analysis into the division between system affordances and user expectations to ensure software that can adapt with students needs. This will be of particular importance as students move from a community of students and faculty to a community of professionals and life-long learning and social connections.

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