INSTRUCTIONAL DESIGN AND ASSESSMENT

Using Facebook as an Informal Learning Environment

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Objective. To create, implement, and assess the effectiveness of an optional Facebook activity intended to expose students to contemporary business issues not covered in the core content of a pharmacy management and leadership course and to perspectives of experts and thought leaders external to their university.

Design. An informal learning strategy was used to create a Facebook group page and guest experts were identified and invited to submit posts pertaining to business-related topics. Students were given instructions for joining the Facebook group but informed that participation was optional.

Assessment. A mixed-methods approach using a student questionnaire, results on examination questions, and a student focus group was used to assess this activity. The informal design with no posting guidelines and no participation requirement was well received by students, who appreciated the unique learning environment and exposure to external experts.

Conclusions. Facebook provides an informal learning environment for presenting contemporary topics and the thoughts of guest experts not affiliated with a college or school, thereby exposing students to relevant “real world” issues.

Keywords: Facebook, social media, Web 2.0, teaching, learning, business

INTRODUCTION

While traditional face-to-face instruction offers numerous advantages for learning, it is constrained by time and space. Many course schedules do not accommodate an instructional strategy that includes discussing non-textbook topics that are frequently on television and radio, in the newspaper, and/or online. Providing contemporary, real-world examples of concepts taught in class is an established method for demonstrating the relevance of course content and reinforcing the need of staying abreast of current issues.¹ Expanding course topics to include contemporary issues beyond the core content also may expand students’ perspectives and illuminate the need for lifelong learning. A second challenge to making course content more relevant to students in a traditional classroom setting is the logistical difficulty of including guest lecturers. Experts external to the college or school can provide unique perspectives, but it can be challenging to schedule and bring them to campus, especially if they are located a great distance from the campus.

When used as a teaching tool, new social media applications may offer distinct advantages for teaching to-

day’s students. The use of social media applications in teaching and learning has garnered substantial interest among educators. Attributes of openness, collaboration, and user-generated content, combined with social media’s immense popularity among college-aged students have made applications like Facebook and Twitter attractive to college instructors.² Research is needed regarding specific strategies for achieving instructional objectives. Three prior studies of social media within pharmacy education have described how Facebook and Twitter can be used for learner interaction.³⁻⁵ The activity described in this paper, however, used a different teaching strategy based on an informal learning environment.

Informal learning experiences occur outside the context of formal education settings and offer ways of engaging students in academic content without the time constraints of the formal curriculum.⁶ While extracurricular programs and book clubs provide opportunities for informal learning, social media offers the additional advantages of an informal, mobile setting and less rigid time constraints as class discussions can be held outside of regular class times.

Course directors of the University of Kentucky pharmacy management and leadership course wanted to broaden student exposure to national thought leaders, as well as devise a strategy for introducing contemporary business and management issues not typically addressed

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in depth in the course. The course provides a fundamental overview of a variety of business, management, and leadership topics such as accounting, marketing, human resources, strategic planning, and organizational behavior. It is critical for pharmacy graduates to maintain professional competence in their knowledge and skill sets and this involves staying abreast of emerging issues that affect all aspects of the provision of patient care.⁷ Accreditation guidelines for pharmacy educators also call for strategies that broaden the professional horizons of students through various means including the use of guest lecturers.⁸ External guest experts can provide a broader and more diverse student experience and those guests can be accommodated easier through asynchronous environments.⁹

To address the goals of including guest experts in online presentation of contemporary topics, the course directors designed an informal learning strategy using a course Facebook group page. Facebook was selected as the delivery medium for 3 primary reasons. It was a simple to use tool for sharing content online and promoting discussion. Because of the social rather than academic nature of Facebook, it created the informal learning environment desired for this activity. Also, Facebook was a feasible platform for bringing students together with external experts and thought leaders already active on Facebook.

DESIGN

The 2 primary objectives of inserting the Facebook learning activity into the course were: to expose students to contemporary topics in pharmacy management, leadership, and business; and to expose students to the perspectives of external experts in the field of pharmacy management and leadership. The Management and Leadership Facebook group was created as a closed group by one of the course directors who also served as the page administrator. Three external experts in pharmacy management and leadership were invited to provide an “outsider’s” perspective on course content. In addition to their practice and leadership experience, these guests were influential thought leaders in pharmacy and the social and administrative sciences. They were provided with the objectives of the activity and asked to make at least 1 post during the semester, but were welcome to contribute as much as they desired.

During the first class session of the required spring 2011 pharmacy management and leadership course, the course directors provided an overview of the Facebook group and instructions on how to join. Also, the group’s URL and instructions were e-mailed to the 128 third-year students enrolled in the course. The uniform resource locator (URL) also was included on the course syllabus and posted on the course Blackboard site. The page adminis-

trator received join requests and approved them within 24 hours. The course syllabus contained a description of the Facebook activity that included the following points:

- (1) Joining the group is optional and any material presented or discussed within the group will appear only on examinations in the form of extra credit questions.
- (2) Group members, course directors, and guests will see only Facebook profile information made available according to each student’s privacy settings.
- (3) Course directors will not become Facebook friends with students during the course.

Because this activity used an informal approach to learning, one of the key decisions made during the instructional design phase was not to follow commonly accepted principles for encouraging student participation and engagement in online communication forums. Instructional designers and educators must give special consideration to the use of social media applications (Facebook in particular) for educational purposes because many students dislike the requirement to use these applications for educational purposes.¹⁰ This is understandable given that Facebook is currently one of, if not the most, “social” of contemporary Web applications. Much has been written by instructional technologists and social media experts regarding the potential “creepy treehouse” effect of requiring students to participate in manufactured social media groups. A “creepy treehouse” occurs when an authority figure (ie, instructor) forces those below him/her (ie, students) into social or quasi-social situations. To some, required participation and interaction in arenas typically described as personal is resented because it infringes upon their peer social space.¹⁰ The potential of the Management and Leadership Facebook group to cause this effect was strongly considered during the design stage.

A second key instructional design decision that also defied general design principles was not to require students to make a specific number and/or type of posts to the Facebook group or even to participate. The type and level of online student interaction for a course generally depends on guidelines set forth by the instructor.¹¹ In contrast to the more structured, traditional forms of online-based discussion, this activity was intentionally designed to mimic the “fluid” and “natural” informal environment that has evolved on social media sites like Facebook.¹² While not requiring students to interact on the group site likely reduced some students’ exposure to shared content and interaction with guests, that tradeoff was necessary to maintain the informality of activity.

This optional activity was presented to students as a means to learn about a more diverse set of contemporary topics pertaining to pharmacy management and the

opportunity to dialog with experts and thought leaders outside of the University of Kentucky. With regard to course grades, the only incentive offered to students was the possibility that bonus questions on course examinations might pertain to posts on the Facebook group.

Content posted to the Facebook group by the course directors and guests covered a variety of contemporary issues from a diverse set of sources. Content for posts was not pre-selected, was not regularly scheduled, and did not necessarily coincide with topics on the course schedule. Postings were at least tangentially related to business, leadership, or pharmacy, and were intended to stimulate/encourage self-reflection or further contemplation of the issue.

EVALUATION AND ASSESSMENT

Of the 128 students enrolled in the course, 100 (78%) joined the Facebook group. The 3 external guests contributed 6 posts and 12 comments to students' posts (Table 1). Posts pertaining to marketing, public relations, and the impact of severe weather garnered the most online interaction among students. Students also contributed original posts pertaining to social media and reputation, hospital public relations, traits of a good boss, and a career advice article regarding what not to say as a boss. Because the objectives of this activity were not directly focused on cognitive or ability-based learning outcomes, they were difficult to assess; thus, a mixed-methods approach consisting of a student questionnaire, results on examination questions, and a focus group was used.

Student Questionnaire

During the final class session, all students ($N = 128$) completed a questionnaire designed to assess some of the outcomes of the Facebook activity. Eighty-four (84%) students indicated that the primary reason for participation was the potential to earn extra credit points in the course. Ten percent indicated the opportunity to learn more about pharmacy management and leadership was the primary reason for joining. Table 2 shows the priority rankings of reasons for participating. Of the 28 students who chose not to participate, the top 3 reasons given were: the student did not have a Facebook account ($n = 9$), the student forgot to join the group ($n = 7$), and the student infrequently used Facebook ($n = 5$).

Participant estimates regarding the percentage of posts that they read ranged from 0 to 95%. Mean estimated percentage of posts read was 38.4 ± 31.3 . Twenty-five percent ($n = 25$) of participants read 75% or more of the posts, while 52% ($n = 52$) read 25% or less of the posts. Thirteen percent ($n = 13$) of participants indicated that the activity was very valuable and 64% indicated it was somewhat

valuable. The remaining 23% were neutral with regard to value.

Fifty-one percent of the participants indicated they would remain members of the group after the conclusion of the course. Thirty percent were unsure and 20% indicated they would leave the group at the conclusion of the course. Twenty-eight percent did not answer the question. Approximately 4 weeks after the conclusion of the course, 88% of the students remained in the group.

The questionnaire contained an open-ended item to allow students to provide general comments regarding the activity. Ninety percent of the students provided a comment. A modified a posteriori thematic analysis method was used to analyze the comments.^{13,14} The course directors identified common themes emerging from the text and then assigned 1 to 3 themes to each comment (Table 3).

Students' comments indicate the activity was well received and popular for a variety of reasons. The primary themes that emerged were students enjoyed the activity, thought it was a novel idea, thought it was beneficial to learning, and liked the perspectives and exposure to experts external to the University of Kentucky. Comments pertaining to various aspects of administration of the activity, explanations that time constraints prevented full participation, and value of the Facebook group as a professional forum also were mentioned.

Examination Results

Seven bonus questions (worth 1 point each) pertaining to the content posted on Facebook were included on examinations throughout the semester. An independent t test revealed a significant difference in scores $t(62) = 2.00, p < 0.001$, with Facebook group participants (4.0 ± 1.6) scoring higher than nonparticipants (2.7 ± 1.1).

Focus Group Results

A focus group with students who had recently completed the course was conducted to delve deeper into students' perceptions and use of the Facebook group. All 5 students who accepted the invitation to participate were completing advanced pharmacy practice experiences within the college. Krueger's guidelines for focus groups were used in the session development, administration, and analysis of the group conversation.¹⁵ The focus group was moderated by one of the course directors. The course directors and the college's director of assessment, who served as an independent evaluator, each recorded notes during the session. At the conclusion of the session, the 3 evaluators discussed and analyzed the session information to ensure consistency of themes.

Students liked the unique use of Facebook for learning about different topics of business and from the perspectives

Table 1. Sources of Content Used in a Management and Leadership Facebook Group Created to Expand the Course Content and Expose Pharmacy Students to the Ideas External Guest Speakers

Source	URL	Topic Focus
ABC News Web site	http://abcnews.go.com/Technology/secretly-recorded-work/story?id=13409126&page=1	Secret recordings of conversations at work
NCPA's The Dose - The Voice	http://ncpanet.wordpress.com/2010/10/24/veteran-pharmacist-advises-students-on-independent-pharmacy-ownership/	Veteran pharmacist advises students on independent pharmacy ownership
Harvard Business Review	http://blogs.hbr.org/haque/2011/04/you_have_the_power_to_choose_p.html	Power to choose prosperity
Chronicle.com	URL no longer valid for non-subscribers	Appellate court decision on nursing student expulsion case
Live Oak Pharmacy Facebook Site	https://www.facebook.com/LiveOakRx?sk=app_7146470109	Example of how a pharmacy uses social media
Forbes	http://www.forbes.com/forbes/2011/0314/features-clayton-christensen-health-care-cancer-survivor.html	Fixing the healthcare system
New York Times blog	http://boss.blogs.nytimes.com/2011/03/16/is-groupon-ruining-retailing/?ref=business	Groupon's effect on retailing
Eric, Pharmacist Blog	http://eric-rph.blogspot.com/2011/03/starting-independent-mtm-business.html	Starting an independent MTM business
The Redheaded Pharmacist Blog	http://www.theredheadedpharmacist.com/?p=3374	Focus of pharmacy in the future
Eric, Pharmacist Blog	http://eric-rph.blogspot.com/2010/10/state-of-professionreimbursements-part.html?spre=tw	State of the profession: Reimbursements
Facebook post (no Web site)	No URL	Implications of severe weather on healthcare
ASHP Media Web site	http://www.ashpmedia.org/video/Foundation/LucindaMaine.mp3	Thoughts on leadership
Kaiser Health News	http://www.kaiserhealthnews.org/Stories/2011/February/11/Medicare-premium-increases.aspx	Sticker shock on drug premiums
Kaiser Health News	http://www.kaiserhealthnews.org/Stories/2011/February/11/doughnut-hole-FAQ.aspx	Shrinking Medicare Doughnut Hole
ASHP Intersections	http://www.ashpintersections.org/2011/03/gazing-into-the-crystal-ball/	Health-System Pharmacy in 2011 and beyond
Fortune Magazine	http://management.fortune.cnn.com/2011/03/09/what-to-do-when-your-star-employees-quit/#more-1632	What to do when star employee leaves your business
VOX Marketing Web site	http://www.marketingvox.com/dominos-employees-cause-youtube-brand-scandal-043809/	Online brand issue due to employee YouTube videos
The New York Times	http://www.nytimes.com/2011/02/07/us/07pharmacies.html?%2359=&r=3&%2359;nl=todaysheadlines&%2359;emc=th23&pagewanted=all	Pharmacies dealing with drug-addicted thieves
CBS Boston Web site	http://boston.cbslocal.com/2011/01/31/lawrence-mayor-catches-trucks-dumping-snow-into-merrimack-river/	Public relations issue due to contracted labor's unethical practice
ASHP Daily Briefing email	No URL	Painkiller prescription errors caused by similar looking, sounding monikers

(Continued)

Table 1. (Continued)

Source	URL	Topic Focus
Lexington Herald-Leader Web site	http://www.kentucky.com/2011/01/26/1612520/former-cumberland-pharmacy-owners.html#storylink=misearch	Pharmacy owner's fined for failing to report theft of prescription pills
Health 2.0 presentation on Pillbox	URL no longer valid	Online presentation about PillBox, a health 2.0 social media application.
The Wall Street Journal Web site	http://online.wsj.com/article/SB10001424052748703954004576089850685724570.html	Employer considerations for disciplining employees due to social media posts
Harvard Business Review blog	http://blogs.hbr.org/hill-lineback/2011/01/are-you-the-boss-you-need-to-b.html	Are you the boss you need to be?
Tanveer Naseer Web site	http://www.tanveernaseer.com/thriving-on-pressure-lessons-from-elite-athletes	Thriving on pressure
ASHP Daily Briefing email	No URL	Health spending grew at slowest pace in 50 years
The Californian Web site	URL no longer valid	Importance of business principles for independent community pharmacists

of external guests. The fact that the activity was optional was paramount to students' interest in the activity. Because participation was not required, students were under no stress to read and memorize the material. This allowed them to read articles that interested them rather than feel they had to read all content because it was assigned. If there had been posting/commenting requirements, students unanimously agreed that their attitude toward the activity would have changed. Posts would have become just another item to "check off" and would not have been thoughtful. Everyone would have satisfied the minimum requirements and nothing more. In addition, the posts that actually were meaningful might have been lost among those that were just fulfilling a requirement.

Students' strategies for checking the group posts were similar to any other group they belonged to on Face-

book. Most would check the post when they received an e-mail notification and/or when it appeared in their Facebook newsfeed. They read some online articles immediately, some they read when convenient, and others they may not have read at all if they were uninterested. However, sometimes they chose to read an article after follow-up comments piqued their interest. The informal nature of this activity was reflected in 1 student's comment that he read some of the posts on an iPhone while waiting in line.

Although students liked the randomness of the posts, they disliked one instance when several posts were made during the time when they were studying for block examinations. Students liked the extra credit questions on examinations because the questions rewarded their participation in the Facebook group but still required them to earn (rather than be given) the extra credit by answering the questions

Table 2. Priority Rankings of Pharmacy Students' Reasons for Joining a Management and Leadership Facebook Group

Reason	Primary Reason	Second Reason	Third Reason	Fourth Reason	Fifth Reason
Potential for extra credit	84	8	2	2	2
Opportunity to interface with external experts	2	30	38	22	1
Opportunity to learn more about pharmacy management & leadership	10	42	29	13	0
Personal interest in using social media for learning/professional use	3	15	22	49	2
Other	3	2	0	1	13

Note: some students gave equal rank to multiple reasons.

Table 3. Themes of Questionnaire Open Comments From Pharmacy Students Who Joined a Management and Leadership Facebook Group

Theme	Criteria for Themes	Number of Comments
Good/Unique idea	Impressed with the idea for this activity	35
Liked/Interested	Liked the activity and/or the activity was interesting	19
External Perspective	External guest participation/perspective was valued	18
Beneficial for learning	Activity was beneficial for learning	18
Administration	Pertained to various aspects of activity administration	18
Time Constraints	Time was a factor in amount of participation	17
Broadened Exposure	Activity exposed students to broader topics than covered in class	15
Forum for professional discussion	Activity was a good forum to discuss professional issues	11
Good use of social media	Activity demonstrated responsible/professional use of social media	5
Miscellaneous	Comments not applicable to other themes	5

correctly; because they were written in a manner that students who had read posts only once could answer the questions correctly; and because not answering them did not severely disadvantage students who did not participate in the Facebook group.

Evaluation by Faculty

The 2 course directors evaluated this activity from several perspectives including ease of administration of the activity, the ability to broaden the perspectives of students, and student response to the activity. Administration of posts, student access, and providing guest access were simple and required a minimal amount of time and technical expertise. Students were provided with a wider variety of contemporary topics than what could have been addressed during class time. Those students with a greater interest in business, management, and leadership appeared to have gained great value from it. On several occasions, students discussed the Facebook posts face-to-face among themselves and with course directors outside of class.

DISCUSSION

This study examined the effectiveness of using Facebook to extend course content and involve external guest experts. Students who were eager to learn aspects of pharmacy business management and/or engage with outside experts were provided that opportunity. This optional activity appeared to be popular among the students. Almost 80% of students joined the group, which was somewhat surprising given the anecdotal evidence that many students are uninterested in or consider business management topics irrelevant to their career choice. The incentive for potential extra credit (albeit minimal) may have prompted many to join who may not have otherwise done so.

Student interaction in the form of posts and comments was relatively small, but not unexpected given the lack of a requirement. In addition, the nature of Facebook communications is somewhat different from other communication media. The Facebook culture is not one of high interaction among all users, as students tend to consume more online content than they post.¹⁶ There is an abundance of one-to-many broadcasting, but relatively little user-to-user interaction. The majority of interaction (determined by frequency of wall posts) occurs among a minority of users.¹⁷ Even users with 500 Facebook friends do not interact with the majority of them. On average, women will comment on 26 friends' posts while men only comment on 17 friends' posts.¹⁸

Although 78% of the students enrolled in the course joined the group, student engagement in the Facebook group was unequal as many of them reported reading less than half of the posts. Because of the informal learning design with no participation requirements and because of anecdotal evidence that many pharmacy students are not interested in business topics, we expected participation and engagement to come primarily from students with a greater interest in the topics and/or a greater commitment to learning the profession. The majority of students also indicated they joined because of extrinsic motivation (eg, bonus questions) versus a smaller number that joined due to intrinsic motivation (eg, desire to learn more). The course directors speculate that the minority of students who joined for intrinsic reasons were likely students most interested in business, management, and leadership in general.

The Facebook group provided a platform to expose students to contemporary issues pertaining to pharmacy practice, management, business, and leadership that otherwise might not have been broached in the course. Several of the topics were beyond the scope of the course and

delted into case-specific conversations regarding the roles of pharmacy managers. As indicated on the questionnaires and during the focus group, the topics provided a glimpse of a different world from that they are accustomed to learning about in pharmacy school. Furthermore, it permitted student exposure to and interaction with experts external to the university, which would have been impractical to implement otherwise. Students valued the different perspectives provided by these external experts.

Based on student feedback, the majority of students who participated appreciated this specific informal learning strategy of using Facebook. Although student use of Facebook is high, it is not universal. Many students have chosen not to create a Facebook account or have deactivated one they had for a variety of personal reasons. Some students may have valid reasons for not using Facebook and any instructional strategy that uses that platform could potentially disadvantage those students.

Although the course directors were pleased with the results of the activity, minor modifications will be made for the next offering of the course. The first modification will be to include more guest experts, thought leaders, and practitioners. The number of invitations was intentionally low for the first offering to ensure that the activity did not become overwhelming for students. Along with the invitation to guests, we will include a schedule of examinations, breaks, and school holidays to prevent posts during times when students are unlikely to read them. Based on feedback from the questionnaire, conversations from the Facebook feeds may be used as examples or for in-class assignments as applicable.

A few limitations existed in the evaluation of this activity. With regard to student performance on examinations, there was no control for group differences between those who participated in the activity and those who did not. However, several students who joined the group only read a small percentage of posts yet the results were still significant. Furthermore, students typically study for examinations together and content from the Facebook page could have been shared with students who did not join the Facebook group. There may have been a selection bias regarding students who participated in the focus group, as those students were a convenience sample from the class as a whole. In addition, the number of focus group participants was minimal. A larger focus group and/or additional focus group sessions may have yielded different information. Finally, even though the participants were informed that the evaluators were not seeking praise or validation of the program, some may have felt pressure to offer positive comments because the course directors were present.

While this informal learning strategy was appropriate for the objectives of the activity, it may or may not be

applicable to other courses with different objectives. For instructors who may want to emulate this in their courses, the “creepy treehouse” effect should be considered strongly. Requiring participation and/or setting minimum interaction parameters may cause students, particularly those not on Facebook and those with privacy concerns, to resent the activity. Based on our feedback from students, any type of requirement for using and posting to Facebook would have negatively altered their perception of and the way they approached the activity. The informality of the learning environment appeared to be one of the primary elements of its success. An instructional strategy that depends upon a more formal strategy requiring lengthy, frequent conversations, and written interaction by all students should probably use a different medium.

SUMMARY

An informal learning strategy of using a Facebook group to expand course content to contemporary topics not included in class, and to include outside experts and thought leaders, was successful. This learning strategy also provides a way to model professional communications via social media. Optional participation with no interaction requirements was a key instructional design element that enabled the informal learning environment. The design was specific for this activity’s goals and may or may not be applicable for other courses with different learning objectives.

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