The 'Facebook' Effect: College Students' Perceptions of Online Discussions in the Age of Social Networking

Nicole E. Hurt
Georgia Southern University, nhurt@georgiasosouthern.edu

Gregory S. Moss
Oglethorpe University, gmoss@oglethorpe.edu

Christen L. Bradley
University of Georgia, cbradley@uga.edu

Lincoln R. Larson
Cornell University, lrl66@cornell.edu

Matthew Lovelace
University of Georgia, lovelace@uga.edu

See next page for additional authors

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Keywords

Facebook, Online discussion, Peer interaction, Social network, Student perception

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Authors

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Nicole E. Hurt Georgia
Southern University
Statesboro, Georgia, USA
nhurt@georgiasosouthern.edu

Gregory S. Moss
Oglethorpe University
Atlanta, Georgia, USA
gmoss@oglethorpe.edu

Christen L. Bradley
University of Georgia
cbradley@uga.edu

Lincoln R. Larson
Cornell University
Ithaca, NY, USA
lrl66@cornell.edu

Matthew D. Lovelace
University of Georgia
Lovelace@uga.edu

Luanna B. Prevost
Michigan State University
East Lansing, Michigan, USA
prevostl@msu.edu

Nancy Riley
University of Georgia
npriley@uga.edu

Denise Domizi
University of Georgia
dpinette@uga.edu

Melinda S. Camus
University of Georgia
Athens, Georgia, USA
mscamus@uga.edu

Abstract

Despite the growing prominence of Facebook in the lives of college students, few studies have investigated the potential of these innovative web-based communication tools for engaging students in academic discussions. This study used a pre-test, post-test design in two introductory-level courses at a large public university to compare students' (n = 107) perceptions of, attitudes toward, and perceived learning associated with two different online discussion tools: the Facebook group forum and a university-sponsored online tool. Although pre-course surveys indicated that few students enjoyed online discussions, post-course analysis revealed significant changes in students' opinions regarding the value and functionality of web-based discussion forums, with Facebook as their clear preference. Students who participated in Facebook discussions enjoyed the site's familiarity, navigability, and aesthetically appealing interface. Facebook users also reported that they were able to become better acquainted with classmates, felt like valued participants in the course, and learned more course material. This study suggests that, if used appropriately, Facebook may help to increase college student engagement in certain learning contexts by cultivating classroom community and stimulating intellectual discourse.

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Introduction

Active participation in class discussions is an important element of many college courses (Jones, 2008), and instructors are constantly searching for strategies to enhance student engagement and involvement inside and outside the classroom. Declining higher education resources and increasing class sizes have presented new challenges, forcing many instructors to consider unconventional approaches to discussion-based learning (Brühwiler & Blatchford, 2011; Newell, 2009; Toth & Montagna, 2009). Although technological innovations have created an expanding suite of innovative, online options that stimulate discourse and peer interaction (Hanson, Drumheller, Mallard, McKee, & Schlegel, 2011; Information Resource Management Association, 2010; McHaney, 2011), a prospective examination of student perceptions of these web-based technologies in an academic discussion context is warranted.

Many instructors utilize online discussion forums through university-sponsored learning management software systems (LMS). Though functional, LMS forums do not effectively capitalize on the peer-to-peer interactions that are increasingly influencing student achievement inside and outside the classroom (Junco, 2012; Kuh, 2009). Due to their design to encourage social interaction, web-based social networking sites appear to be promising facilitators of out-of-class discussion, but their potential utility in the educational sector remains somewhat unknown. Can social networks function as educational tools? Do students embrace the possibility of intellectual discussions taking place on traditionally non-academic websites? This study attempted to address these questions by exploring college students' perceptions regarding two forms of web-based discussion: academic conversations in a conventional LMS and educational dialogue via Facebook.

Literature Review: Facebook in the College Classroom

Online teaching and learning has been the topic of much pedagogical discussion recently; and the conversations had in *International Journal of the Scholarship of Teaching and Learning* have been no exception (Bair & Bair, 2011; Beaudoin, 2012; Conrad & Pedro, 2009; Davis, J., Lennox, S., Walker, S., & Walsh, K., 2007; Kalin, 2012; Kenney-Kennicutt, Gunersel, & Simpson, 2008; Kurtz & Sponder, 2010; Lin, 2008). The majority of these studies focus on the successes, paradoxes, and challenges of teaching an exclusively online course in which the instructor rarely, if ever, has face-to-face contact with the students (Bair & Bair, 2011; Conrad & Pedro, 2009; Davis et al., 2007; Kenney-Kennicutt et al., 2008; Kurtz & Sponder, 2010; Lin, 2008). While a few studies do examine the use of social or new media technologies within the traditional, face-to-face teaching environment (Beaudoin, 2012; Kalin, 2012; Jefferies & Grodzinsky, 2007), questions still remain as to what roles social and new media technologies can play in teaching and learning. This study explored how Facebook can play a role in the processes of teaching and learning in an effort to contribute to this dynamic conversation.

Of all the social networking sites, Facebook is by far the most popular and most frequently used among college students. Dwyer, Hiltz, and Passerini (2007) found that 55% of their research participants (n=117, primarily college students) who were Facebook members accessed the site at least once a day and 82% of these users updated their profiles on a daily basis (see also Christofides, Muise, & Desmarais, 2009; Ellison, Steinfield, & Lampe, 2007; Ross et al., 2009). Smith and Caruso (2010) found that Facebook use among college students has increased in the past few years. In 2010, 97% of students surveyed reporting using Facebook, up from 89% of respondents in 2008. (Smith & Caruso, 2010). Social communication (maintaining interpersonal relationships and social enhancement), information exchange, and entertainment value all appear to be significant motivations for Facebook users (Cheung, Chiu, & Lee, 2010; Madge Meek, Wellens, & Hooley, 2009; Pempek, Yermolayeva, & Calvert, 2009). Educational and learning motivations are notably absent in the list; however, this does not mean that Facebook cannot be used for educational purposes. In fact, we argue that Facebook's popularity and students' expertise with the site make it an exciting potential educational tool. Facebook is also a tool with the potential to influence students both within the United States and across international boundaries. Because 80% of Facebook's 845 million users live outside the United States (Facebook, 2012), Facebook also represents an internationally accessible, engaging information-sharing mechanism that could encourage intercultural dialogue and critical thinking (Maher & Hoon, 2008).

The popularity and ubiquity of Facebook has therefore inspired numerous academic studies focused on the site's role in higher education (Goertler, 2009; Grosseck, Bran, & Tiru, 2011; Mazman & Usluel, 2010) and its potential effects on classroom climate (Mazer, Murphy, & Simonds, 2007). Research has suggested that there are benefits associated with the use of Facebook for educational purposes. Some studies suggest that Facebook's emphasis on peer-to-peer interactions can enhance informal learning experiences (Goodwin, Kennedy, & Vetere, 2010; Madge et al., 2009; Selwyn, 2009). Research has also demonstrated that students have used Facebook effectively for academic purposes and activism (Bosch, 2009; Grosseck et al., 2011). Students are not the only ones contemplating academic uses of social networks, however. Faculty use of social networking sites for course-related purposes is also rapidly expanding (Junco, 2012). Overall, previous studies and trends suggest that Facebook is a promising instructional tool that warrants further attention.

Facebook's greatest asset might be its capacity to enhance student satisfaction and engagement, but limited research investigating these topics has been inconclusive. De Villiers (2010) used Facebook groups to initiate optional discussions in a post-graduate distance-learning class. She found that voluntary study group members benefited by extending required material and making personal contributions on Facebook. Schroeder and Greenbowe (2009) provided an optional, out-of-class, informal Facebook discussion group to undergraduate students enrolled in an introductory organic chemistry laboratory. Although 59% of students did not join the Facebook group, students who used the Facebook group posted discussion items more frequently and more dynamically than did those who used the conventional course website. Because both of these studies examined voluntary contributions by distance-learning student populations, the applicability to a traditional classroom was limited. In another study, DeSchryver et al. (2009) collected data from an online introductory educational psychology course with one section using Facebook discussion boards and the other section using Moodle, a free, open-source, web-based LMS. The mean

number of words per post was higher in Facebook, but significant differences between discussion groups in terms of social presence and the frequency of students' discussion interactions were not observed.

Despite many promising indicators, college educators appear hesitant to embrace Facebook as a pedagogical tool (Moran, Seaman, & Tinti-Kane, 2011; Roblyer, McDaniel, Webb, Herman, & Witty, 2010). Instructors' incredulity toward the social networking site's educational potential is understandable since Facebook use has been associated with lower academic achievement. For instance, Kirschner and Karpinski (2010) found that Facebook users had significantly lower GPAs and reported spending fewer hours studying per week compared to non-users. Furthermore, privacy concerns also prevent college instructors from embracing Facebook as a novel teaching tool (see Bair & Bair, 2011; Debatin, Lovejoy, Horn, & Hughes, 2009; Lewis, Kaufman, & Christakis, 2008; Young & Quan-Haase, 2009). Finally, some students also expressed concerns about the use of Facebook in the classroom. Roblyer et al.'s (2010) study found that 15% of students (n = 120) said they would feel "uncomfortable" with the use of Facebook for a class.

These studies paint a complicated picture of Facebook's potential to serve as a teaching and learning tool, and, as such, more research is needed to investigate systematically student perceptions of Facebook-based discussions in college courses. For instance, will students take discussions on Facebook seriously? Do students prefer Facebook to more conventional academic, web-based discussion alternatives? Do students' opinions of online discussions change after using Facebook as a discussion forum? What are the advantages and disadvantages of Facebook discussions from a student perspective? Using applied research strategies grounded in the scholarship of teaching and learning (McKinney, 2007), this study provided information that could improve teaching and learning by helping educators determine if Facebook is a valuable tool for engaging college students and stimulating academic dialogue. A better understanding of student views and opinions regarding various online tools could help instructors develop strategies for both implementing and improving web-based discussions (Hew, 2011; Roblyer et al., 2010; Smith & Caruso, 2010).

Research Objectives

To investigate Facebook's potential as an academic discussion forum, we compared students' pre- and post-course preferences for and attitudes toward two online discussion tools: the Facebook "Groups" forum and the discussion option available through a more conventional, Blackboard Vista powered LMS, e-Learning Commons (eLC). The study was guided by the following research objectives:

- To evaluate students' pre-course preferences for, attitudes toward, and perceived learning associated with online discussions.

- To evaluate students' pre-course use of and comfort with various web-based discussion tools (focusing on Facebook and eLC).
- To compare students' post-course preferences for, attitudes toward, perceived learning associated with, and overall ratings of online discussions in two different forums: Facebook and eLC.
- Based on results from the surveys, to provide educators with practical advice for implementing online discussion assignments in their courses.

Method

Course Description & Student Participants

During the 2011 spring semester, we employed a quasi-experimental design involving two introductory-level courses in different departments at a large public university in the southeastern United States. Both courses featured a similar, discussion-based format. The "Introduction to Philosophy" course (PHIL, n = 62), which introduced students to the methodology of philosophy including the basic principles of normative reasoning, employed discussion to practice philosophy in public settings. The "Introduction to Women's Studies" course (WMST, n = 45), which introduced students to many of the major debates surrounding women's issues within the contexts of both activism and scholarship, used discussion to encourage students to explore critical questions of gender, race, class, sexuality, and globalization in the US.

Student participants came from two sections of each course taught by the same instructor. Within each course, one section was randomly assigned to use Facebook for the course's online discussion component; the other section was assigned to eLC. This division allowed for direct comparisons of discussion forum effects (hereafter "treatment" effects) within and between courses. The demographic composition of students in the treatment groups across both courses was comparable (Table 1), and students in all sections displayed similar scores on all pre-course metrics. Collectively, the groups represented approximately 50 diverse majors from departments across campus.

In both PHIL and WMST, instructors posted prompts at least once per week designed to initiate student online discussion. To maintain as much consistency between the two classes as possible, both instructors avoided interceding in the discussions after posting the initial prompt unless necessitated by something within the content of the conversation; this occurred in less than five percent of the discussions. Consistency between the two classes was also maintained through the instructor's similar grading policies and initial explanations of the online discussion aspect of the course. In each class, online participation accounted for eight percent of the total course grade. Instructors emphasized the importance of online discussion and asked students to monitor the discussion boards and contribute weekly. Both instructors used the same assignment description and grading rubric for evaluating student performance. The discussion rubric outlined four main criteria: frequency of posts, connection to class material, conscientiousness, and critical thinking.

In order to address ongoing concerns of privacy and security issues related to social networking sites and recognizing that students often overlook these issues (Gross & Acquisti, 2005; Tuunainen, Pitkänen, and Hovi, 2009) , members of the research team conducted an in-class training session for each Facebook section of PHIL and WMST. This session addressed account security and privacy settings. Students were also shown how to create customized "friends lists" with specific privacy settings, and were provided with a handout containing step-by-step privacy instructions and details of Facebook's privacy policy. Instructors also created private groups for their section that were only accessible via an invitation from the instructor. In addition, while none of the students in this study resisted the idea of Facebook as a discussion medium, the research team was prepared to resolve potential problems and questions prior to meeting with students. If any student in the Facebook group resisted, we planned to assign them to the eLC group for the purposes of discussion.

Table 1. Sample Characteristics Comparison for eLC and Facebook Study Groups

Variable	Facebook Group (n = 50)	eLC Group (n = 57)	Whole Sample (N=107)
Gender (% female)	66.0	66.7	66.4
Academic Year (% Fresh. or Soph.)	82.0	75.4	78.5
No. of Majors Represented	27	35	49[a]
Mean Age	19.4	19.8	19.6
Mean GPA	3.17	3.29	3.24
Prev. Class with Online Discussion (%)	46.0	64.3	55.1

[a]Types of Majors Represented: Humanities (28.0%), Social Sciences (25.2%), Journalism/Communications (15.9%), Natural Sciences (10.3%) Business/Economics (9.3%), Other (11.2%)

Data Collection
During the first week of class, students' initial preferences for, attitudes toward, and perceived learning associated with online discussion were assessed through a pre-course survey. This instrument asked specific questions about students' discussion-based learning preferences inside and outside the classroom and their general impressions of discussion in an online environment. Subjective rating scales ranged from one to seven, with lower scores representing "very uncomfortable" or "strongly disagree" and higher scores representing "very comfortable" or "strongly agree." Other items measured students' experience with various types of technology and web-based products (particularly Facebook and eLC). The pre-course survey included demographic questions such as gender, age, academic year, and grade point average (GPA). An open-ended question gave participants an opportunity to explain what they liked and disliked about online discussions.

During the last week of class, the same preference and attitude variables were re-assessed using a post-course survey. The post-course instrument also included a section targeting educational outcomes of the different online discussion forums. Rating scales were identical to the pre-course survey for all Likert-type items, ranging from one to seven. Additional items on the post-course survey provided students with an opportunity to rate the efficacy of each discussion forum and highlight positive and negative aspects of their online experience during the semester in an open-ended format.

Data Analysis

Pre-course student preferences for and attitudes toward online discussions within individuals and among various demographic groups were examined using chi-square tests (for nominal data) and paired or independent samples t-tests (for intra-personal and inter-group interval data). Because the students had not interacted at this point in the semester, the assumption of independence was satisfied. Means are reported in this text with the associated 95% confidence intervals.

Post-course student preferences and ratings of online discussions were compared using chi-square tests and analysis of covariance (ANCOVA). Although the use of ANCOVA with intact, nonrandomized groups such as those in this study can interfere with statistical inferences (Tabachnick & Fidell, 2001), our pre-course comparisons of student demographics, discussion preferences and attitudes, and technology use demonstrated that groups were approximately equal and independent prior to the treatment. Preliminary checks were conducted to ensure that the assumptions of reliable covariate measurement, normality, linearity, homoscedasticity, and homogeneity of regression slopes were not violated. In ANCOVA, independent variables were the discussion forum treatment (Facebook or eLC), the course (PHIL or WMST), the treatment*course interaction, and gender. Covariates were pre-course scores on the items of interest (where applicable) and student GPA. We used a family-wise error rate of alpha = 0.05, and the Bonferroni-corrected comparison-wise error rate for each subscale varied as .05/n where n = the number of items in the scale. When significant treatment*course interactions were present (which was often the case), we examined data for each course separately with the course and the treatment*course interaction variables removed. Paired t-tests were used to highlight mean pre and post-course score differences for individuals in each course and treatment group. The Eta-squared effect size statistic (η^2), which represents the proportion of the variability in the dependent variable accounted for by the different factor levels, was calculated using the following formula for *F*-tests: $\eta^2 = SS_{between\ groups}/SS_{total}$.

Qualitative data were coded using an inductive Delphi approach. Several observers employed the constant comparative method to identify patterns and classify responses to open-ended items into a set of ordered categories that supported emerging trends (Dey, 1993). This coding process highlighted the major advantages and disadvantages associated with both online discussion forums.

Results

Pre-course Opinions of Online Discussions
Before the semester, students indicated that they felt significantly more comfortable communicating in-class discussions led by the instructor (Mean = 5.64 ± 0.21) than either instructor-led, which we called "formal," (M = 4.47 ± 0.33) or student-initiated, which we termed "informal" (M = 4.57 ± 0.32) online discussions. Very few students (7.9%) agreed with the statement "Online discussions should be part of college courses." Only 21.9% of students agreed with the statement "I enjoy online class discussions," and 21.5% of students agreed with the statement "Online discussions increase my confidence as a writer." Students were generally ambivalent towards the perceived learning associated with online discussions on the pre-course survey. Mean scores for the items "When I contribute to online discussions, it helps me learn" (M = 3.64 ± 0.30), "When I contribute to online discussion, it helps my peers learn" (M = 3.77 ± 0.25), and "When my peers contribute to online discussions, it helps me learn" (M = 4.08 ± 0.31) hovered around the neutral value of four.

On the open-ended section of the pre-course survey, most students (71.4%) confirmed a strong affinity for various types of in-class discussions. Only 23% reported that online, out-of-class discussions were their preferable form of communication. Students who preferred classroom discussions (n = 76) did so for several reasons. Many students (16.9%) liked the immediate feedback. One individual stated, "They (classroom discussions) are more fast-paced, and I learn much more from them." Others (14.1%) appreciated the clearer form of communication, suggesting "I would rather talk with real people than email because there is less opportunity for misunderstandings." Students (12.9%) also valued the structure and order associated with classroom discussions, and some (11.8%) enjoyed the comfort level with the traditional format. One student remarked, "Online discussions seem disjointed and not natural. I like the idea of everyone working through topics in a classroom together, not separately online." Of the students who liked online discussions (n = 25), many (35.7%) preferred this format because it allowed them time to think through their responses. "With online discussions, it is easier to collect my thoughts and contribute something meaningful," one student acknowledged. Others (32.1%) thought the online approach was more comfortable, providing an opportunity to communicate without speaking in front of people. As one student stated, "I like it (online discussions) because I don't have to worry about being offended or offending anyone." Convenience was another asset noted by online advocates (14.3%), and several students commented on the ease of access and navigability of the online sites.

Pre-course Use of and Comfort with Web-based Discussion Tools
Prior to the course, students across all sections reported high use of web-based technology. Over 98% of students surveyed had a Facebook account. An equally high percentage had previous experience using eLC. In fact, 86% of students surveyed had taken five or more courses that required them to use eLC. However, when asked about their comfort levels navigating the two sites, students were significantly more comfortable with Facebook (Mean = 6.29 ± 0.23) than eLC (Mean = 5.50 ± 0.23; t(111) = 7.06, p < 0.001). Students also reported using Facebook more often than any other Internet sites.

Post-course Ratings of Online Discussions: Is There a Facebook Effect?
Comfort with online discussions. Controlling for pre-course comfort level ratings, the ANCOVA for post-course discussion preferences revealed a significant treatment*course interaction for both formal, instructor-generated [$F(1,99) = 14.9$, $p < 0.001$] and informal, peer-generated [$F(1,99) = 10.0$, $p = 0.002$] online discussions (see Table 2 for example ANCOVA). In other words, the treatment effects depended on the course; hence, comfort rating preference data were examined separately for each course. In WMST, comfort ratings for both formal [$F(1,40) = 14.0$, $p = 0.001$, $\eta^2 = 0.24$] and informal [$F(1,40) = 18.0$, $p < 0.001$, $\eta^2 = 0.30$] discussions were affected by the treatment. Facebook participants (adjusted mean = 6.01 ± 0.85) displayed a significantly higher post-course comfort level with formal online discussions than eLC participants (adjusted mean = 3.93 ± 0.76). The difference in WMST students' comfort ratings for informal online discussions was even more pronounced (adjusted mean for Facebook = 6.41 ± 0.85; adjusted mean for eLC = 4.26 ± 0.76). In PHIL, student ratings of comfort levels with formal [$F(1,56) = 1.6$, $p = 0.209$] and informal [$F(1,56) = 0.3$, $p = 0.637$] online discussions did not appear to be significantly impacted by the treatment. Paired t-tests comparing pre- and post-course comfort level scores for the different treatment groups confirmed that, in WMST, Facebook participants tended to feel significantly more comfortable with formal and informal online discussions and other peer group learning formats than they did before the course. In PHIL, students in both the Facebook and eLC treatment groups exhibited a similar positive post-course response to online discussions (Table 3).

Table 2. Example ANCOVA Examining Main Effects and Interactions of Discussion Forum Treatment and Course on Students' Post-Course Comfort Level Ratings for Informal Online Discussions (Controlling for Gender and Covariates GPA and Pre-course Scores)

Source	df	Type III SS	F	p	η^2
Intercept	1	45.73	14.03	0.000	
Treatment	1	25.21	7.94	0.006	0.06
Course	1	1.05	0.33	0.566	
Treatment*Course	1	31.69	9.98	0.002	0.08
Gender	1	0.01	0.00	0.967	
GPA	1	2.87	0.90	0.344	
Pre-course Score	1	15.41	4.86	0.030	0.04
Error	99	314.33			

Table 3. Score Changes (Post-Pre)[a] in Comfort Level Ratings for Facebook and eLC Online Discussion Strategies by Course and Treatment Group

Philosophy (n = 62)		Women's Studies (n = 45)	

Discussion Strategy	Facebook	eLC	Facebook	eLC
In-class discussion led by professor	+0.28	+0.32	+0.41	-0.17
In-class discussion led by peers	-0.57	-0.06	+1.23***	+0.34
In-class small group work	-0.71	-0.21	+1.13**	+0.26
Out-of-class small group work	-3.00***	-1.35*		+0.27
			+1.54***	
Online discussion boards, formal, generated by instructor	+0.82*	+1.41**		-0.74
			+1.73***	
Online discussion boards, informal, generated by peers	+0.72	+0.74	+1.86***	-0.70

*,**,***denotes significance of paired t-test at alpha = 0.05, 0.01, and 0.001, respectively
[a]Comfort levels scores were rated on a scale from 1 = very comfortable to 7 = very uncomfortable

Attitudes toward online discussions. After the semester, many more students in both sections of both courses (26.8%, an 18.9% increase from the pre-course survey) agreed with the statement "online discussions should be part of college courses." Almost half of the participants (47.3%, a 25.4% increase) agreed with the statement "I enjoy online class discussions," and 29.5% (an 8.0% increase) of students agreed with the statement "Online discussions increase my confidence as a writer."

Controlling for pre-course attitude scores, the ANCOVA revealed significant treatment*course interactions for the items: "I enjoy online discussions" [$F(1,93) = 6.3$, $p = 0.014$] . In WMST, the treatment effect was significant for "I enjoy online discussions", with Facebook participants showing a more positive response than eLC users [$F(1,36) = 10.9$, $p = 0.002$, $\eta^2 = 0.19$, adjusted mean difference = +1.87 ± 1.15]. In PHIL, adjusted mean scores for these variables did not differ between the treatments [$F(1,54) \leq 0.1$, $p \geq 0.765$]. Students in the Facebook sections of both courses displayed higher scores on the "online discussions should be part of every course" item, but these differences were not statistically significant using the corrected error rate of p = 0.016 for a 3 item scale, [$F(1,94) = 5.5$, $p = 0.021$]. Students in the Facebook sections of both courses displayed higher scores on the "increase my confidence as a writer" item, but these differences were not statistically significant [$F(1,94) = 2.2$, $p = 0.141$].

Perceived learning in online discussions. Comparisons of overall adjusted post-course means showed no significant difference between Facebook and eLC participants agreement with each perceived learning statement following the course. Controlling for pre-course perceived learning scores, the ANCOVA for treatment*course interactions were not statistically significant for any the perceived learning variables [$F(1,94) \leq 3.5$, $p \geq 0.065$]. The pooled treatment effects on the perceived learning variables

across both courses were not statistically significant either: "When I contribute, it helps me learn" [$F(1,94) = 3.5$, $p = 0.066$]; "When I contribute, it helps peers learn" [$F(1,94) = 2.6$, $p = 0.110$]; and "When peers contribute, it helps me learn" [$F(1,94) = 2.5$, $p = 0.118$].

The ANCOVA for post-course educational outcome variables (controlling for demographic variables) revealed significant treatment*course interactions [$F(1,100) \geq 5.2$, $p \leq 0.024$] for all items except "develop confidence as a writer." Therefore, the treatment effects in both courses were examined separately. Comparisons of mean post-scores for each variable showed that the beneficial effects of the Facebook treatment were more obvious in WMST than they were in PHIL (Figure 1). In WMST, the strongest treatment effects were observed for the following variables: "getting to know others in the class" [$F(1,41) = 23.1$, $p < 0.001$, $\eta^2 = 0.34$], "learning course material" [$F(1,41) = 15.8$, $p < 0.001$, $\eta^2 = 0.26$], "shaping the way you think about subject matter" [$F(1,41) = 12.5$, $p = 0.001$, $\eta^2 = 0.21$], and "feeling like a valued participant in the course" [$F(1,41) = 11.8$, $p = 0.001$, $\eta^2 = 0.21$]. In PHIL, "getting to know others in the class" and "feeling like a valued participant" were the only two outcomes favored more by students in the Facebook group than eLC, but these differences were not statistically significant.
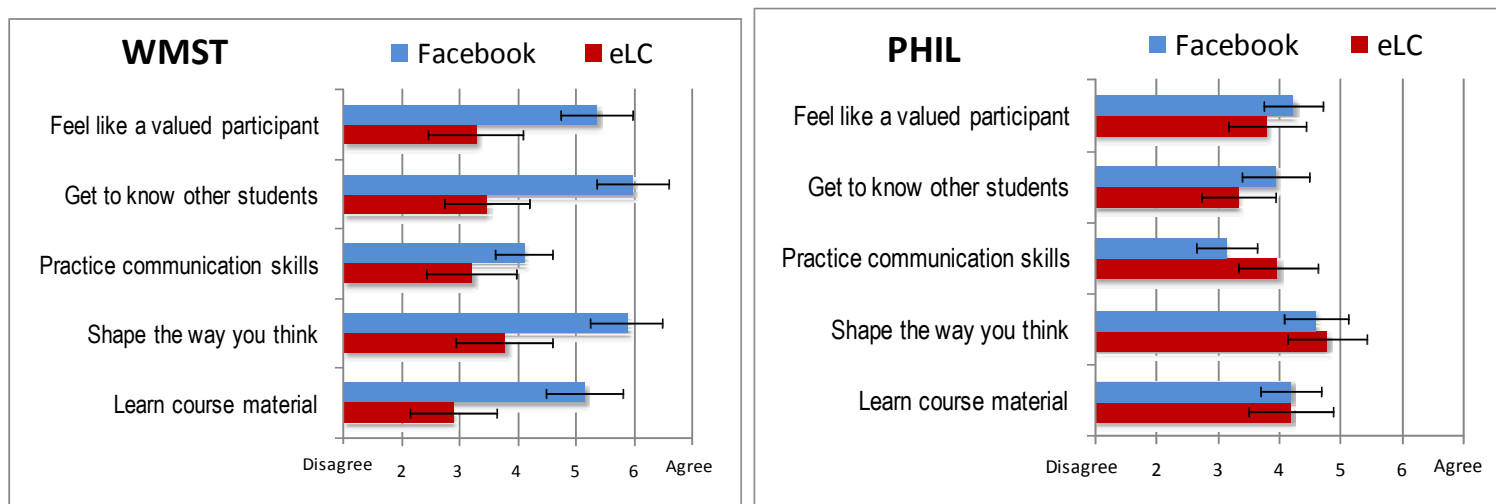

Figure 1. Mean Post-course Student Ratings for Learning Outcome Variables by Course (WMST and PHIL) and Treatment Group (Facebook and eLC)

Students' overall efficacy ratings: Facebook vs. eLC. Following the course, students in both treatment groups agreed that the discussion forum used in their section had been generally effective. Although efficacy ratings were not significantly different between the groups [$\chi^2(2,107) = 4.2$, $p = 0.125$], more students in Facebook sections (88.0%) said the forum was effective compared to students using eLC (77.2%). Participation frequency showed a similar pattern. Despite a lack of statistically significant differences [$\chi^2(5,107) = 7.8$, $p = 0.168$], more students in the Facebook group (62.0%) than the eLC group (49.1%) reported participating multiple times per week in online discussions.

When asked what aspects of their online discussions worked well and what aspects could be improved, students in the Facebook sections revealed many of the website's advantages including the easy format, the convenience (Facebook was already part of many students daily routine) and the social connectivity felt by students. A few students reported disadvantages such as poor format and the informality of communications. Although students in eLC sections acknowledged similar assets often associated with online discussion, complaints about this conventional platform were more prevalent. Students found eLC to be an outdated format, which led to unorganized postings. Also unlike with Facebook, more students found it difficult to remember to post on eLC. Overall response to Facebook was very positive and can be encapsulated by this quote from a student in PHIL: "I did not experience any problems [with Facebook] and I thought it was a very inventive and innovative technique that should definitely be used in the future." Only 4% of students expressed a negative reaction to discussions in the Facebook sections, compared to 11% of students using eLC.

Differences between Facebook and eLC became more evident when students were asked to speculate how their participation might have changed if online discussions were held on the other forum. About 43% of eLC participants said they would have contributed more with a switch to Facebook. Only 12% of Facebook participants said they would have participated more if discussions were held on eLC [$\chi^2(2,107) = 14.9$, $p = 0.001$]. This pattern was consistent within both courses. In WMST, 56% of eLC users said they would have preferred Facebook; only 9% of Facebook users would have preferred eLC [$\chi^2(2,48) = 13.1$, $p = 0.001$]. In PHIL, 38% of eLC users said they would have preferred Facebook; only 17% of Facebook users would have preferred eLC [$\chi^2(2,63) = 5.1$, $p = 0.079$].

Facebook users who favored a switch to eLC were clearly skeptical of Facebook's academic value. These students believed that school-related activities should only occur in traditional academic forums, and they did not view Facebook as an appropriate venue for course-related discussions. As one student put it, "Facebook would be very distracting. I appreciate elc [*sic*] being only concerned with school/education." The eLC users who preferred eLC to Facebook were concerned that Facebook was too personal and feared that it would become a social distraction. One student in PHIL summed up this viewpoint: "Facebook is too personal of a venue to discuss class matters."

The eLC users who favored a switch to Facebook did so for multiple reasons. Many students stated that because of their frequent presence on Facebook, it would serve as a convenient discussion forum. One student in WMST exemplifies this

perspective with the following statement: "I'm on Facebook a lot more often than I am on eLC and I would be reminded more often that I needed to fill out a discussion." Others cited the familiar, user-friendly interface. A student in PHIL admitted, "It's definitely a set up that I would feel more comfortable with, which would probably lead me to feel more comfortable in my postings." Some liked the potential for establishing more personal connections with classmates, noting that, "On Facebook, we would be able to match faces with comments and know who we're talking to. I think it would be beneficial for getting to know our classmates." Most Facebook users who preferred to keep using Facebook for future discussions reiterated the convenience and accessibility of Facebook, which was already a central part of their daily lives. Many preferred the Facebook interface for posting and responding, claiming it was easier to navigate than eLC. A student in PHIL remarked, "On eLC, it's hard to remember to do assignments and regularly participate. I used eLC for journals in another class and I found that I participated in and enjoyed the Facebook discussion much more. eLC is much more difficult to figure out. Plus, every college student knows fb [Facebook]." One PHIL student succinctly summed up the viewpoint of many of his peers: "eLC is boring. Facebook is better."

Discussion

Online forums offer an innovative pedagogical tool for engaging students and stimulating intellectual discourse (Palmer, Holt, & Bray, 2007; Zhu, 2006). However, participation in web-based discussions can be stymied by a variety of factors. In this study, student-reported barriers included the perception of a stagnant or slowly advancing conversation, a sense that comment threads were disjointed and isolated, and a general lack of familiarity with institutionally-sponsored online discussion platforms, such as eLC. Rapidly evolving technological tools such as Facebook can specifically address many of these issues by altering the way in which Internet discussions occur (Goodwin et al., 2010; Yang, Wang, Woo, & Quek, 2009), but a major question remained: would students accept Facebook as an academic tool? Results suggest that most students do.

By comparing Facebook to a conventional online discussion tool, this study illustrated several key points regarding the potential academic value of the social networking site. First, Facebook offered an unparalleled level of comfort and convenience that appeals to many college students (Smith & Caruso, 2010). Pre-course technology use by the participants in this study supported other research showing that college students use Facebook with extraordinary frequency (Christofides et al., 2009; Juceviciene & Valineviciene, 2010). By meeting students where they are, college instructors increase the likelihood that students will be more motivated to engage with their peers and course material.

Facebook's easy-to-use and aesthetically appealing interface could also help students navigate many of the common barriers to online discussion participation. Many students in this study who were initially frustrated by the unnatural trajectory of online conversations and the cumbersome task of contributing on university-sponsored platforms were excited about the shift to the Facebook format. They favored Facebook because it was familiar, frequently used, and easy to navigate - assets that have been

revealed in previous studies (Dwyer et al., 2007; Pempek et al., 2009; Smith & Caruso, 2010). Students also noted that Facebook helped them feel more connected to classmates and more inclined to exchange information. This unique benefit may explain why getting to know others in the class, learning course material, shaping the way students think about subject matter, and feeling like a valued participant in the course garnered more positive ratings by Facebook participants than those in eLC. Results support other evidence that one of Facebook's greatest strengths may be its ability to enhance classroom community, helping students share ideas and get to know each other in a supportive environment (see also Grosseck et al., 2011; Mazman & Usluel, 2010). Future research might investigate how the specific features of Facebook accomplish the task of community building.

To understand how Facebook contributed to these education outcomes, it may help to consider the differential success of Facebook in the two courses. In WMST, the Facebook group displayed significantly higher post-test scores across all outcome variables. However, in PHIL, the post-test scores (after controlling for pre-test scores) in the Facebook and eLC groups were comparable. The course effect could be influenced by the individual styles and specific strategies each teacher utilized to initiate online discussion. Although both instructors used the online forums to post links to articles, news stories, and blogs that connected to the class material, the WMST instructor contributed more frequently, often posting five to ten discussion prompts a week. Because the WMST instructor posted more topic choices, the students may have perceived the WMST instructor as more involved in the discussions, which may motivated them to engage more frequently with Facebook (Al-Shalchi, 2009). The difference may also be due to the number of student-initiated posts in each section. In the WMST course, students were encouraged to initiate their own discussions, whereas PHIL students were only expected to respond to the instructor's prompts. In order for a student to post a discussion prompt or link on the eLC forum, the student had to email the material to the instructor who could then start a new thread. In other words, eLC did not allow the students to start their own threads, but Facebook did. Because students noted that it was generally easier to post and link material on Facebook than eLC, the WMST assignment may have been more conducive to the Facebook format, encouraging more frequent contributions. This, in turn, may have created a stronger sense of community, which may have contributed to WMST Facebook students' more positive affective response. However, these explanations are simply conjecture. Future research should ask more questions, perhaps even through post-course interviews, as to why students felt motivated to contribute to the discussion forums.

The most obvious explanation for the difference between WMST and PHIL student perceptions of online discussion after the course may be due to the course content. The PHIL course objective was to show students how the abstract philosophical topics discussed in class (e.g. Stoicism) applied to non-academic settings, such as prison life, demographics, political movements, and psychology in warfare, among others. The PHIL discussion forum gave the students the opportunity to interrogate critically the philosophical presumptions of their own beliefs by exchanging views with others from divergent perspectives. The WMST course objective was to encourage students to interrogate critically their cultural biases as well as to examine how gender, race, class, and sexuality ideologies shaped their individual lives. Simply put, while both the PHIL and WMST students were asked to engage critically everyday topics, the nature of the WMST curriculum and material may have encouraged more personal sharing

online. For example, WMST discussions often focused on "personal" issues such as weight, sexuality, appearance, and societal rules. The fact that Facebook allows students to "see" each other through Facebook profile pictures likely made this task more comfortable and engaging for the Facebook users, nurturing a group synergy that magnified treatment effects. For the WMST students, the frequently trafficked Facebook page may have become a virtual safe space necessary for working through the very public, and yet simultaneously personal, topics of gender, race, class, and sexuality (Hassel, Reddinger, & Van Slooten, 2011). Alternatively, perhaps because the breadth of acceptable discussion topics in the WMST course was wider than the PHIL course's topics, the WMST students could have simply capitalized on the expanded options for posting links and reflecting on current events through Facebook, thereby contributing to greater satisfaction with the assignment. Future studies exploring Facebook's potential as a discussion tool could make a concerted effort to standardize treatment structure, providing a more controlled look at Facebook's relative value across lower-level and upper-level courses in a variety of disciplines.

Discrepancies in Facebook's efficacy between the two courses and student feedback indicated that Facebook may not be an ideal discussion tool in all instructional contexts. A few limitations, in particular, should be addressed in order for Facebook to function as a productive learning tool. Though only a small percentage, some students' ratings and comments showed that Facebook could distract students who might otherwise be engaged in schoolwork. This sentiment has been echoed by previous research (Kirschner & Karpinski, 2010; Madge et al., 2009). Other students believed that work and pleasure should not mix, recognizing Facebook as a resource for building social relationships that should be separate from the scholarly realm. Similar observations in other studies could explain why some students may be reluctant to embrace Facebook as an educational tool (Goodwin et al., 2010; Grosseck et al., 2011; Madge et al., 2009)*.* Ambiguous boundaries related to the informal, personal aspects of cyber communication and friendships were another concern expressed by participants in our study. It must be noted, however, that while some students from this study were concerned that Facebook use for educational purposes blurred the personal/academic boundary, students did not have concerns about online security. Accordingly, instructors interested in employing Facebook as a discussion forum should frame their assignments with the above concerns in mind.

Even though the students in this study did not express concerns about online security, privacy and online security issues are a persistent concern for some Facebook users (see Bair & Bair, 2011; Debatin et al., 2009; Lewis, Kaufman, & Christakis, 2008; Young & Quan-Haase, 2009). For many instructors, Facebook use in the classroom may raise issues about student rights to privacy and whether using Facebook is in compliance with the Family Educational Rights and Privacy Act (FERPA, 20 U.S.C. Section 1232g). FERPA gives students the right to inspect and copy their educational records and prohibits institutions from disclosing such records without written student consent (Taleb & Butler, 2007). Prior to the digital age, instructors' compliance with FERPA guidelines primarily meant keeping grades and personal identification information secure and private. Even though specific exceptions and amendments have been added since FERPA was written into law in 1974 (Rodriguez, 2011), it is not always clear which educational records are FERPA-protected and which ones are not now that much of our work is conducted in digital formats. Universities typically provide an overview of FERPA on their websites and in student and faculty handbooks, as well as data security policies for employees to follow (Rodriguez, 2011). In fact, many schools now include statements

specifically related to social media use. According to Rodriguez (2011), however, the use of non-university affiliated social media as a part of classroom activities does not typically threaten FERPA laws, particularly when the tools are not used to discuss publicly student grades or to provide direct evaluative feedback of an individual's performance.

Along with following the guidelines of FERPA, it is also important for instructors to consider individual student privacy concerns. As we discussed in the methods section, students in our study were provided with specific training in Facebook privacy settings and security, a measure that should be taken in any course that utilizes social media as an educational tool. We encouraged students to approach their instructors if they had any remaining concerns or were not interested in signing up for Facebook if they did not already have an account. Although none of the students selected for the Facebook group in each course reported not having a personal Facebook account, instructors may want to be prepared for this situation before implementing a Facebook-based assignment. One way to address this issue is to provide non-Facebook-member students with an account that has been established by the instructor. The Facebook profile could use a pen name (e.g. "student 5") so that it would not be identifiable by any non-course related Facebook users. The pen name would be shared with the class, so that the community being built within the Facebook discussion would develop. This would allow the student to participate without feeling as if they were forced to create a profile and fully invest in Facebook.

In addition to providing empirical evidence, this study also yielded practical advice for college-level instructors who are interested in incorporating online discussion activities into their courses. First, instructors should be prepared for students' initial resistance or negative attitudes toward the use of online discussion. The students in this study overwhelming expressed their disinterest in this learning tool. As such, instructors who hope to use this tool, either through a university-sponsored LMS or Facebook, should be strategic in their framing of the assignment. The assignment in this study was framed as an extension of the classroom where students could try out ideas, which may have influenced the students' more positive review of online discussions after the course. Second, instructors should assess whether Facebook would be a good choice for their students and course material. Across the board, our students embraced Facebook as a discussion tool. Facebook remedies many of the problems that students reported having with the traditional LMS system, such as lack of synchronicity, outdated format, and the impersonal nature of the system. However, not all course topics are suited for Facebook. If an instructor is searching for ways to promote peer interactions, build social capital within a group, and make individuals feel like valued participants in a course, then social networks such as Facebook represent a promising option. Currently, one of our research teammates is creating a Facebook discussion component for her Public Speaking course. She hopes that students will become more comfortable with each other through the Facebook discussion assignment and subsequently will be less nervous when giving their speeches to their classmates. Third, instructors should be mindful about their presence on the discussion boards. Although the idea faculty-student interaction on Facebook has sparked debate (Teclehaimanot & Hickman, 2011), students in this study did not report any discomfort when interacting with their instructors on Facebook for this assignment. This may be due in part to the fact that the instructors played passive roles in the discussions. For example, the instructors often started the discussion threads, but rarely contributed to the thread. In addition, the instructors created new profiles for educational purposes. These

profiles did not include any personal information and utilized University-sponsored photographs as profile pictures. Instructors interested in using Facebook in the future may take all of the above suggestions into consideration before designing a Facebook-based course component.

Overall, data suggested that Facebook could be used effectively for academic discussions. Despite a few outspoken opponents of Facebook, student ratings and responses across both courses showed that Facebook was generally more engaging and more effective than the conventional eLC online discussion alternative. Although anti-Facebook sentiment and bias among college instructors is warranted occasionally (e.g. Kirschner & Karpinski, 2010), many students seem to view Facebook as a useful educational tool. Future research should investigate the ethics of using Facebook, which is a for-profit organization designed to gather information about its users in order to sell advertisements, in the pursuit of higher education. Additional future research could move beyond subjective indicators of student perceptions and satisfaction to target learning outcomes and student performance. These objective measures would provide additional evidence to support or refute the value of emerging technologies, such as Facebook, as academic discussion forums.

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