

FACEBOOK IN HIGHER EDUCATION: CONTRIBUTIONS TO SENSE OF LEARNING AND SENSE OF CONNECTEDNESS

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Abstract

Facebook constitutes one category of social networking media that is growing in prominence in the lives of university students. Because of its collaborative capabilities, it has found its way into the delivery of higher education courses. Advocates claim that Facebook-enhanced courses facilitate an increased sense of learning and sense of connectedness, compared to non-enhanced courses. This study analyzes the responses of 243 students using a survey methodology in an independent measures experimental research design. The responses of students exposed to Facebook-enhanced business courses were compared with those in non-Facebook-enhanced courses. The courses were offered by instructors at two different universities. Students' attitudes toward the community of practice (CoP) that evolved in their classrooms, sense of learning, and sense of connectedness serve as the dependent variables. The incorporation of Facebook into students' courses serves as the independent variable. It was found that students in the Facebook-enhanced courses experienced a more positive CoP, greater sense of learning, and greater sense of connectedness compared to students in non-Facebook-enhanced courses. Implications for teaching are discussed.

Keywords: Facebook, Sense of Learning, Sense of Connectedness, Community of Practice, University classroom technology

Facebook in Higher Education: Contributions to Sense of Learning and Sense of Connectedness

Introduction

Many collegiate educators believe that Web 2.0 technology has enormous potential to shape the way humans learn (Bosch, 2009; Ractham, Kaewkitipong, & Firpo, 2012). They believe that capitalizing on the social nature of Web 2.0 technology can create an optimal environment for learning to occur (Hung and Yuen 2010), given that today's students learn about computers, software and network technologies at an early age. Those students are primarily "digital natives" (Prensky, 2001) who are comfortable with technology even before they enroll in their first university course. The higher education community has made great strides in utilizing technology infrastructure, yet the pedagogical implications remain vastly unexplored (Hemmi, Bayne, & Land, 2009).

Social networking media, including Facebook, are gradually and steadily transforming education and the way most subjects are taught. Because social media are interactive, those participating in it can create, edit or share information. Unlike traditional one-way media such as television, social media are two-way conversations in which control is decentralized and open to masses of users (Barczyk & Duncan, 2012). Consequently, faculty are becoming less the authoritative deliverers of knowledge and more the facilitators of exploration and collaboration in pursuit of answers, opportunities and solutions to problems. Some higher education faculty view Facebook and other social media as a way to motivate and engage students to be actively involved in their learning (Junco, Heiberger, & Loken, 2011).

Facebook has the potential to become an exciting instructional tool given its popularity and students' familiarity with its site. In fact, it has the potential to influence students in the United States and globally. Because 80% of Facebook's 1.19 billion monthly active users live outside the United States (Facebook, 2013), it represents a global, engaging information-sharing mechanism that can facilitate critical thinking and intercultural dialogue (Maher & Hoon, 2008). Research suggests that Facebook's focus on peer-to-peer interactions enhances informal learning experiences (Goodwin, Kennedy, & Vetere, 2010; Madge et al., 2009; Selwyn, 2009). Other studies have

shown that students have effectively used Facebook for learning and activism (Bosch, 2009; Grosbeck, Bran, & Tiru, 2011).

While students' use of Facebook is well documented, research demonstrates that faculty members have also utilized it for academic purposes. Junco (2012) reports that faculty are using social media sites for course-related purposes and that usage is rapidly increasing. However, some college educators are hesitant to embrace Facebook as an instructional tool (Moran, Seaman, & Tinti-Kane, 2011; Roblyer, McDaniel, Webb, Herman, & Witty, 2010). A study by Kirschner and Karpinski (2010) reported that Facebook users had significantly lower grade point averages than non-users; and they spent fewer hours per week engaged in study compared to non-users. In sum, the current research suggests that Facebook is a promising, but not a perfect, educational tool that warrants further application and study.

The primary purpose of this paper is to discuss the results of a study designed to determine whether the incorporation of Facebook into the instructional design of business courses has an impact on students' attitudes and perceptions of those courses. Specifically, students' perceptions of the classroom community of practice (CoP) established in their Facebook-enhanced courses will be compared to students' perceptions of the CoP in non-Facebook-enhanced courses. Additionally, whether or not students in Facebook-enhanced courses perceive a different sense of classroom community (SCC) from those in non-Facebook-enhanced courses will be analyzed.

Organizationally, this paper is divided into four parts. The first reviews the literature and presents a statement of two research questions. The second describes the method used to address the research questions and begins with a description of how the classroom CoP was created using Facebook. The third summarizes the results associated with the research questions. The fourth part discusses the findings of this study and their implications.

Review of the Literature and Statement of Research Questions

Community of Practice

This study focuses on learning as a social construct, explained in part by students' sense of classroom community and their establishment of a course level CoP. The social nature of learning can be distinguished from other perspectives that are either cognitive or affective in nature. Lave and Wenger (1991) contend that learning involves engagement in social interaction. It is part of a broader conceptual concept, namely CoP, which constitutes the lowest meaningful context for learning to occur. It is primarily a framework for social participation, in which people are engaged at home, work, school, or other group settings. Typically, individuals are involved in a number of CoPs, which share a common assumption. The assumption is that "engagement in social practice is the fundamental principle by which we learn and so become who we are" (Wenger, 1998, p. 45). The current study is modeled after that of Hung and Yuen (2010), which principally examined students' CoP and sense of classroom community (c.f. Rovai 2001, 2002a, 2002b, 2003).

A classroom community is psychological in nature and has the following characteristics: (a) its environment exists in the world of education; (b) its fundamental purpose is learning; and (c) the community has a fixed organizational tenure, i.e., the course or program in which members are engaged has a fixed length (Rovai, 2001). This view of classroom community suggests that any course in which students are enrolled, whether good or bad, can be a classroom community. It implies that any efforts that classmates put into establishing and sustaining their community can be grounded in the framework of classroom CoP (Rovai, 2001).

Research has established the importance of classroom CoPs to facilitate effective learning. Summers and Svinicki (2007) investigated the relationship between students' perceptions of motivation and classroom community. They found that students in cooperative learning classrooms had a greater motivation to achieve goals and a higher sense of community than those in non-cooperative learning classrooms. As such, CoP affected students' sense of classroom community. Other studies revealed that teaching, cognitive, and social factors are related to the nurturing of students' sense of classroom community (Garrison, Anderson, & Archer, 2000; Shea, 2006; Shea & Bidjerano, 2008). As cited in Hung and Yuen (2010), Rovai argues that when learners "feel a sense of community, it is possible that this emotional connectedness may provide the support needed for them not only to complete successfully a class or a program, but also to learn more" (2002b, p. 321).

Based on these studies, the first research question proposed is:

Do students' perceive that there is a difference in the CoP that evolves in Facebook-enhanced courses as compared to the CoP that evolves in non-Facebook-enhanced courses?

Sense of Classroom Community

According to Rovai (2002b), a *classroom community* is a “feeling that members have of belonging, a feeling that members matter to one another and to the group, that they have duties and obligations to each other and to the school, and that they possess shared expectations that members’ educational needs will be met through their commitment to shared learning goals” (p. 322). Rovai (2002b) contends that classroom community consists of two factors. The first is learning, which is “the feeling that knowledge and meaning are actively constructed within the community, that the community enhances the acquisition of knowledge and understanding, and that the learning needs of its members are being satisfied” (p. 322). The second is connectedness, which is “the feeling of belonging and acceptance and the creation of bonding relationships” (p. 322). A strong classroom community demonstrates characteristics such as shared common interests, active engagement in two-way communications, and trusting and helping other members (Rovai, 2002b).

Social media such as Facebook, Google +, MySpace and others are designed to facilitate social interaction and information exchange. A number of researchers believe that social networking is the life blood of CoP. Among those researchers are Mason and Rennie (2007) who incorporated several forms of social media to support a local community’s development of a land trust. They found that social media supporting social interaction increased the emotional connectedness of community members, which facilitated to the development of the land trust. Russo, Watkins, and Groundwater-Smith (2009) believed that social media, specifically MySpace and podcasts, created knowledge-sharing in CoPs, which led to informal learning about museums.

Social media, especially Facebook, has the capacity to enhance student engagement and satisfaction. In a study by deVilliers (2010), Facebook groups were used to foster optional discussions in an online course. She found that the voluntary Facebook group members benefited in the course by critically thinking about required material and contributing to the online discussion. In another study by Schroeder and Greenbowe (2009), undergraduate students in a basic organic chemistry laboratory participated in an optional, out-of-class Facebook discussion group. Students who participated in the Facebook discussion group posted items more frequently and dynamically than those in the official course website.

Barbour and Plough (2009) analyzed the pedagogical use of social media in an online program at a charter high school. The high school attempted to increase students’ SCC by incorporating technologies such as Facebook, Ning, and others. Incorporating social media into the blended learning courses at the charter school enhanced students’ learning experiences, and was found to be effective and well-regarded by faculty as well as students. This body of research suggests that social media enhance the learning experience and student engagement in various types of CoPs – professional, informal, and online.

Based on these studies, the second research question proposed is:

Do students perceive that there is a difference in the sense of community related to learning and connectedness that they experience in Facebook-enhanced courses as compared to those experienced in non-Facebook-enhanced courses?

Method

Description of the Classroom CoP Created with Facebook – Experimental Group

Students at two universities in California and Indiana were encouraged to voluntarily participate in the Facebook component of four different business courses offered during two academic terms. The courses were accounting, business law, human resource management, and organizational staffing. While the subject matter in these courses was different, the classroom style and teaching philosophy of the instructors were similar. Both used a participative, student-focused, collaborative approach to teaching.

The instructors agreed on a uniform teaching protocol so that presentation of the courses was consistent and similar. Thus, course design and instructor differences were minimized. Only students registered for the course were allowed to access the Facebook group page. This protected privacy and provided an environment conducive to postings and the general use of Facebook. What follows is a description of how Facebook was integrated into the instructional design of the courses in order to create an enhanced CoP. All courses used Blackboard as its official course management system and Facebook was employed as an instructional supplement and the experimental intervention.

Students were assigned a term project in their respective courses and worked in teams, usually comprised of four members. The project was required but incorporating Facebook use into the project was optional. Teams using Facebook held virtual meetings, posted YouTube links and research findings relevant to the team project and commented on one another's works. Initially some students were quite unfamiliar with social media technology, but the CoP evolved as they became more comfortable with using Facebook. Some students needed reassurance that their postings were private and would only be viewed by members of the class, i.e., participants in the CoP. They also needed reassurance about the security of the information posted, because while they had no objections to sharing thoughts and opinions in a classroom CoP, they did not want those ideas revealed to employers, outsiders, or even Facebook "friends."

It appeared that Facebook, more so than BlackBoard, facilitated student interactions and had a positive influence on their senses of learning and connectedness. Students in some teams used Facebook for other course work and discussions, even beyond their assigned projects.

After about six weeks, the semblance of a true CoP became apparent when students started asking questions on Facebook about the upcoming examination, quizzes, holiday break, and deadlines for the submission of their term project. Fellow students who knew the answers to many questions felt comfortable posting a response, which created open dialogue. This was advantageous because sometimes students posted a response before the question was seen by the professor. For example, there was one situation where the professor posted an announcement on Blackboard, but because of a system failure, a majority of the students in the course were unable to see it. One student who saw the Blackboard announcement posted it to the group Facebook page and the information was effectively disseminated immediately to all the students in the course.

The CoP continued to evolve as both students and instructors became increasingly comfortable posting YouTube videos, comments about course-related events on campus, and summaries of material related to the term project. Class participation grew in terms of volume and quality. A review of the times during which material was posted indicated that students' interactions and engagement went beyond their classrooms and scheduled class meeting times.

Students in the control group were not given the opportunity to use Facebook in their courses, which was the experimental intervention. All other aspects of their courses mirrored those in the experimental group.

Students who participated in the Facebook and non-Facebook-enhanced courses were encouraged to complete a paper-based questionnaire, which was designed to assess their course experiences.

Survey Instrument

The questionnaire consisted of 52 closed and open-ended items. To assess students' perceptions of the CoP that evolved in the experimental and control groups, a question containing eight sub-items was adapted from the Hung and Yuen (2010) study. The question assessed the extent to which the CoP facilitated (1) knowledge sharing, (2) collaboration and interaction, and (3) learner centered activities. Students responded to these items with a Likert scale where 1 represented strong disagreement and 5 represented strong agreement.

To assess SCC, a series of items from Rovai's (2002a) Classroom Community Scale was adopted. Ten items that have been validated in other studies (Hung and Yuen, 2010; Black, Dawson, & Priem, 2008; Rovai, 2002a, 2003) were used to measure students' feelings of learning-oriented behaviors and their feelings of connectedness. Students responded to these items using a five-point Likert scale where 1 represented strong

disagreement and 5 represented strong agreement. Four items were reverse scored. Analysis of the questionnaire was carried out such that higher scores on the 10 SCC items reflected stronger senses of learning and connectedness.

The questionnaire for the control group was modified to preserve the essential content of each item, but to reflect the fact that students in the courses of that group did not participate in the Facebook intervention.

The questionnaire, which also assessed student demographics, was administered in a paper-and-pencil format.

Respondents

Respondents included 243 students from nine face-to-face business courses at two public universities located in California and Indiana, USA. There were a total of 276 registrants in the courses taught by the authors of this paper. Students in those courses voluntarily participated in the survey, which was approved by the universities' Institutional Review Board. They completed the questionnaire anonymously.

Procedure

The study was conducted using a survey methodology in an independent measures experimental research design. The incorporation of Facebook into the instructional design of the respective courses served as the experimental manipulation. There were two groups of courses, with the experimental group receiving the Facebook intervention. The courses in the control group had identical content but did not have the Facebook intervention. During the last week of classes, students in the Facebook-enhanced courses (experimental group) and in the non-Facebook-enhanced courses (control group) were surveyed. Each student received a paper questionnaire, was informed that participation in the survey was voluntary, would not affect their course grade, and that all data collected would be maintained anonymously. Students completed the questionnaire in approximately 12 minutes.

Results

Respondent Characteristics

There were 243 respondents to the survey, of which 106 had participated in Facebook-enhanced business courses and 137 had participated in non-Facebook-enhanced business courses. The study consisted of 117 (48.1%) females and 122 (50.2%) males. Four respondents failed to indicate gender. The data on age were categorized into two groups: 25 years old or less and more than 25 years old. One hundred twelve respondents (46.1%) were between the ages of 18 and 25, while 131 respondents (53.9%) were over the age of 25. The majority of respondents ($n = 189$) had previous experience with online education (77.7%). Similarly, a majority ($n = 186$) were full-time students (76.5%). In terms of class level, the majority of respondents (87.2%) were upper division students and 12.8% were lower division undergraduate students.

First Research Question - Perceptions of CoP

Table 1 summarizes the data associated with the questionnaire items designed to measure students' perceptions of the CoP associated with Facebook and non-Facebook-enhanced business courses. The table shows the means, standard deviations, and percentages associated with the experimental and control groups. It also shows the results of the t-tests that helped to determine whether there was a statistically significant difference between the means for each CoP item in the experimental and the control groups. Levene's test of equality of variances was performed on each item and revealed significance levels greater than .05. This indicated that the assumption of heterogeneity of variance could be rejected. As such, the independent sample t-tests performed in this study assumed equal variances between the means for each of the eight CoP items.

Table 1

Students' ratings on items assessing the perceptions of their CoP

Item ^a	Experimental ^b	Control ^b
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	<i>M</i>	<i>P</i> ^c	<i>M</i>	<i>P</i> ^c	<i>df</i>	<i>t</i>
<i>Knowledge Sharing</i>						
Social networking site allows me to share my personal interests	3.27 (0.95)	47	3.01 (0.81)	41	237	4.07***
Social networking site allows me to find and share educational resources	3.70 (0.86)	66	3.61 (0.58)	48	236	0.11
Social networking site promotes knowledge sharing	3.82 (0.81)	74	3.59 (0.49)	57	237	3.23**
<i>Collaboration and Interaction</i>						
Social networking site allows me to hold forums to discuss topics of interest	3.71 (0.80)	67	3.36 (0.79)	49	238	2.31*
Social networking site allows me to communicate with classmates	3.96 (0.81)	78	3.73 (0.62)	59	236	1.02
Social networking site provides collaborative learning opportunities	3.70 (0.84)	66	3.58 (0.73)	52	237	0.89
<i>Learner-Centered Activities</i>						
Social networking site allows me to personalize pages to express individuality	3.25 (0.91)	44	3.02 (0.64)	38	237	3.07**
Social networking site encourages learner-centered activities	3.56 (0.77)	56	3.25 (0.71)	36	237	2.30*

Notes:

^a A five-point Likert scale used for each item, 1 = strongly disagree, 5 = strongly agree

^b *N* = 106 for the experimental group; *N* = 137 for the control group

^c Indicates the percentage of respondents who agreed or strongly agreed with this item

*** *p* < .001

** *p* < .01

* *p* < .05

The data indicate that a greater percentage of respondents in the experimental group agreed or strongly agreed with the statements concerning their CoP as compared to the respondents in the control group. This indicates that the perceptions of students in the experimental group were more positive toward their CoP compared to their counterparts in the control group. The data reveal that there were significant differences between the means of the experimental and control groups for five of the eight items assessing CoP. Generally, students in the experimental group had more positive perceptions of their CoP than students in the control group. They perceived that Facebook contributed to the knowledge sharing, collaboration, and learner-centered activities that evolved in their courses. There were no significant differences between the experimental and control group means for the items suggesting that Facebook (1) allowed them to find and share educational resources, (2) allowed them to communicate with classmates, or (3) provided collaborative learning opportunities.

Results not summarized in Table 1 indicate that students in the experimental group used Facebook once a day or more (66%) and accessed their group page once daily or more (47%). Sixty three percent of the students agreed or strongly agreed with the statement that using Facebook for classroom discussion was very convenient, was more effective in the classroom than Blackboard (30%), and their overall experience using Facebook was very positive (52%). Fifty percent of the students agreed or strongly agreed that Facebook was well integrated into their courses. Seventy five percent of the students agreed or strongly agreed that they acquired personal or professional growth after completing the course with the Facebook CoP.

Second Research Question – Sense of Classroom Community: Learning and Connectedness

Table 2 summarizes the data associated with the questionnaire items designed to measure students' perceptions of the SCC in their Facebook and non-Facebook-enhanced business courses. The table shows means, standard deviations, and percentages associated with the sense of learning and sense of connectedness items for the experimental and control groups. It also shows the results of the t-tests that helped determine whether there was a statistically significant difference between the means for each of the SCC items in the experimental and control groups. Because Levene's test of equality of variances revealed significance levels greater than .05, the independent sample t-tests performed in this study assumed equal variances between the means for each of the ten SCC items.

Table 2

Students' ratings of items assessing their sense of classroom community

Item ^a	Experimental ^b		Control ^b		df	t
	M	P ^c	M	P ^c		
<i>Sense of Learning</i>						
I am encouraged to ask questions	3.89 (0.88)	74	3.40 (0.79)	71	236	3.92 ^{***}
Is not hard to get help when I have a question ^d	4.02 (0.94)	80	3.51 (0.98)	76	236	3.90 ^{***}
My educational needs are being met ^d	3.98 (0.92)	75	3.68 (0.87)	69	236	3.50 ^{**}
I am given ample opportunities to learn	3.81 (0.76)	71	3.41 (0.67)	65	236	3.74 ^{***}
Course promotes a design to learn ^d	4.08 (0.89)	77	3.57 (0.82)	72	235	4.56 ^{***}
<i>Sense of Connectedness</i>						
Students in this course care about each other	3.27 (0.91)	42	3.01 (0.81)	40	236	2.40 [*]
This course is like a family	2.82 (1.11)	26	2.69 (0.79)	22	236	2.98 ^{**}
I do not feel isolated in this course ^d	3.91 (0.94)	70	3.65 (0.88)	61	236	3.36 ^{**}
I can rely on others in this course	3.11 (1.04)	38	2.93 (1.01)	34	236	2.16 [*]
Others will support me	3.45 (0.86)	49	3.36 (0.73)	43	237	1.19

Notes:

- ^a A five-point Likert scale used for each item, 1 = strongly disagree, 5 = strongly agree
^b N = 106 for the experimental group and N = 137 for the control group
^c Indicates the percentage of respondents who agreed or strongly agreed with this item
^d Reverse scored item, framed positively in this table
^{***} p < .001
^{**} p < .01
^{*} p < .05

The data indicate that a greater percentage of students in the experimental group agreed or strongly agreed with the statements concerning their SCC as compared to the respondents in the control group. This indicates that students in the experimental group had a greater sense of learning and sense of connectedness as compared to their counterparts in the control group. The data reveal that there were significant differences between the means of the experimental and control groups for nine of the ten items relating to SCC. Generally, students in the experimental group had a greater sense of learning and sense of connectedness than students in the control group. They perceived that incorporating Facebook into the instructional design of their business courses contributed to an enhanced SCC with respect to learning and connectedness. There was no significant difference between the experimental and control groups for one item that probed whether students felt "confident that others will support [them]". This item was associated with students' sense of connectedness.

Discussion

Two Research Questions

This article discussed the results of a study designed to establish whether students perceived a difference in their CoP and SCC when Facebook was integrated into the instructional design of their business courses. Facebook, the most globally popular social networking site, served as the classroom intervention in a study using a two group independent measures research design. In the experimental group students participated in the Facebook intervention. In the control group students did not participate in the intervention. Overall, there were significant differences in students' perceptions of their CoP, sense of learning, and sense of connectedness between the experimental and control groups. Students participating in the Facebook-enhanced courses reported that Facebook was convenient, user-friendly, and a beneficial supplement to their traditional on-campus courses.

In the first research question, we examined whether students perceived the CoP that evolved in their Facebook-enhanced courses was different from the CoP in the non-enhanced courses. Statistically significant differences were found between the experimental and control groups for five of the eight variables measured. The experimental group, as compared to the control group, had significantly higher mean scores for knowledge sharing, learner-centered activities, and to some extent, collaboration and interaction (where only one of three variables was statistically significant). This indicates that incorporating Facebook into the instructional design of a course affects students' perceptions of social learning, i.e., the CoP that evolves in a classroom environment. An overwhelming majority of students in the experimental group perceived that Facebook promoted knowledge sharing (74%) and provided collaborative learning opportunities to discuss topics of mutual interest (67%). Clearly, Facebook facilitated engagement among students in course-related dialogue, which is believed to have impacted their overall learning experience. Consistent with research by Garrison, Anderson, and Archer (2000), Shea (2006), and Shea and Bidjerano (2008), the integration of Facebook into students' courses was a social factor that created an effective CoP.

In the second research question, we examined whether students perceived the SCC that resulted in their Facebook-enhanced courses was different from the SCC in the non-enhanced courses. Statistically significant differences between the experimental and control groups were found for nine of the ten SCC variables. Only one of the five variables associated with the sense of connectedness cluster showed no difference between the experimental and control group means. In most cases, the mean scores for students' sense of learning and sense of connectedness were higher in the courses enhanced with Facebook than in non-enhanced courses. It is apparent that adding Facebook to students' face-to-face courses enhanced their perception of learning and had some effect on their feelings of connectedness. These findings are consistent with the research conducted by Russo, Watkins, and Groundwater-Smith (2009) as well as Barbour and Plough (2009), providing evidence for the conclusion that Facebook created knowledge sharing, and thus increased students' perceptions of learning. It more directly enhances the learning experience and has a moderate effect on engagement as reflected by students' sense of connectedness.

Implications for Teaching

A major finding of this study is that Facebook facilitated students' SCC. This has implications for teaching and learning. According to Junco (2012), students who have strong feelings of community are more likely to be engaged and persist in their studies (Rovai, 2002b) than students who feel alienated or alone. Instructional design strategies that help strengthen the sense of community in the classroom may help student learning, engagement, and possibly retention.

By facilitating interaction and collaboration, Facebook may provide students with the opportunity to engage beyond their classroom periods. Students were noted to post items in their Facebook-enhanced CoP outside of their designated class meeting times. It is believed that this increased participation in course-related discussion facilitated student learning. University instructors should examine and consider using Facebook as an instructional technology so as to create a productive learning community. They should note, however, that supplementing a course with Facebook is time-intensive. Students may find that they are overloaded with the abundant information shared by members of their CoP. As such, instructors should develop a strategic instructional plan and a structured mechanism for information sharing and interaction to manage their classroom CoP. In so doing, they can insure its effectiveness and resultant benefits.

When using Facebook for instructional purposes in higher education, instructors should respect students' need for privacy and information security. As students are introduced to Facebook in their courses, a concerted attempt should be made to limit outsider access to group pages. Only members of the CoP, i.e., students officially registered for the course, should be allowed to access the group Facebook page.

Until the instructional efficacy of social media is documented in further research, instructors should use prudence in enhancing their courses with Facebook.

Implications for Further Research

Using an experimental research design, this study documented the effect of social media on students' perceptions of their classroom CoP and senses of learning and connectedness. These findings are based on self-reported subjective measures. Future research should be designed to go beyond measures of attitudes and perceptions. Studies should measure the extent to which Facebook and other social media impact actual learning outcomes and student performance. These objective measures would provide additional insights into the pedagogical value of social media.

Limitations

This study has two potential limitations. The first relates to its use of a single survey instrument, which could result in a common method bias. Future research should use additional methods for collecting data such as interviewing or focus groups. This would buttress survey results and lessen the threat to validity occasionally observed in educational research that uses a single data collection instrument (Donaldson & Grant-Vallone, 2002). The second limitation relates to this study's reliance on self-report measures. Even though the student respondents completed the questionnaire anonymously, there is the potential for social-desirability bias.

Author Biographies

Dr. Casimir Barczyk is a professor of management at Purdue University Calumet. He conducts research in the areas of social media as an instructional tool, international business, academic dishonesty, online education, faculty development, and human resource management. He has published over 85 refereed journal articles and conference proceedings. Since receiving his Ph.D. from the University of Illinois, he has taught at universities in Indiana, Illinois, and Wyoming. He has lectured in Lithuania and Poland and serves as an industry consultant.

Dr. Doris Duncan is a professor computer information systems and accounting. She has more than 30 years of experience in information technology, serving as a communications consultant and marketing manager for AT&T. She has published over 70 refereed journal articles and authored a book entitled *Computers and Remote Computing Services*. She has also served as a Fulbright Specialist in 2009 and 2012.

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