

USING A FACEBOOK GROUP AS A FORUM TO DISTRIBUTE, ANSWER AND DISCUSS CONTENT: INFLUENCE ON ACHIEVEMENT

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ABSTRACT

This study examined the effectiveness of using a Facebook group to increase preservice teachers' knowledge when one was used as a forum to share, answer, and discuss content-related questions in a technology course required for all students seeking teacher licensure. Further, it examined the students' prior use of Facebook groups, how the treatment group used the group, and their perspectives of the use of Facebook as an educational tool. The results revealed no significant gain in achievement. Almost all participants had prior experience using a Facebook group, and the primary purposes of these groups were for organizing events, communication within organizations, communication within classes, and lending support to memorials/dedications. Although participation in the group was required and linked to a grade, most of the participation was characterized as very low level (i.e., "liking"), with only half supplying the answers to questions and about one fifth making comments. Their perspectives on whether Facebook can be used for educational purposes were lukewarm, yet they indicated significant change in their perception that Facebook assignments were an invasion of privacy. While they perceived the idea to be good, they viewed the expectations for participation as too lenient, thus causing lack of in-depth participation.

KEYWORDS

Facebook, social networking, social learning, teacher education.

1. INTRODUCTION

Pempek, Yermolayeva, and Calvert (2009) reported that social networking sites (SNSs), including Facebook, MySpace, and Twitter, have become a common part of everyday life, especially for young adults. These web-based services allow the display of information through a profile page (Aydin, 2012; Hew, 2011; Pempek et al., 2009) that may be public or semipublic and allow members to connect socially (boyd & Ellison, 2008). Pempek et al. (2009) concluded that social networking sites are rising in popularity and are providing a unique way for people to communicate with one another.

Multiple authors (Cheung, Chiu, & Lee, 2010; Golder, Wilkinson, & Huberman, 2007; Junco, 2011; Roblyer, McDaniel, Webb, Herman, & Witty, 2010) concur that the most popular SNS for college students is Facebook. Described as an online SNS in which individuals can share personal information and photographs as well as connect and communicate with friends (Aydin, 2012; Pempek et al., 2009), Facebook was created by Harvard student Mark Zuckerberg in early 2004 and emerged as a "Harvard-only online social networking site" (Hew, 2011, p. 663). It spread to other higher education institutions and opened to the public in 2006 (Facebook, 2013b). As of March 2013, this SNS reported more than 1.1 billion active users (Facebook, 2013a).

Facebook allows members to organize into groups that relate to "personal and professional affiliations, which might include educational affiliations, workplaces, interests, and political and religious beliefs" (Aydin, 2012, p. 1094). A Facebook group provides the setting for this study, which examined changes in achievement as measured by knowledge when used as a forum to distribute, answer, and discuss content-related questions in a technology course required for all students seeking teacher licensure. Further, the study examined the students' prior use of Facebook groups, how the treatment group used the group, and their perspectives of the use of Facebook as an educational tool.

2. LIT REVIEW AND PURPOSE

2.1 Use of Facebook by College Students

Research studies reveal that Facebook users are mostly students (Aydin, 2012). Researchers from the Pew Research Centers' Internet and American Life Project (Jones & Fox, 2009; Lenhart, 2009; Lenhart, Purcell, Smith, & Zickuhr, 2010) found that 67–75% of college-aged adults (not necessarily students) use social networking sites. Additionally, the EDUCAUSE Center for Applied Research (ECAR) conducted a study with 36,950 students who attended 126 American universities and one Canadian university, which determined that of the 90% who used social networking sites, 97% reported that they used Facebook (Smith & Caruso, 2010). This study found further that Facebook use by college students increased from 89% in 2008 to 97% in 2010. The growth of Facebook and its popularity among college students suggests that its use in educational contexts can be “a potentially powerful idea” (Mazman & Usluel, 2010, p. 444). While the use of Facebook by college students is high, researchers have reported harmful effects associated with its use.

2.2 Harmful Effects Associated with using Facebook

One harmful consequence associated with using Facebook is time. Junco (2011) established that students devote a lot of time daily to the social networking site, and Kirschner & Karpinski (2010) suggested that this time allocation can have a negative impact on academic performance, leading to lower GPAs and less time spent on academic work. Other detrimental effects that have surfaced through research studies include exhibiting inappropriate behaviors (Butler, 2010), abuse and cyberbullying (Cantanzaro, 2011; Siegel, 2010), and issues relating to privacy and friendship (Wihbey, 2010). Others have found evidence that college students post inappropriate information and photos to their pages (Olson et. al, 2009; Steinbrecher & Hart, 2012), which can result in unexpected consequences such as job loss.

Another drawback to using Facebook for educational purposes is students' perceptions of its use. Students consider communicating on Facebook to be fun rather than serious (Lewis & West, 2009). Dahlstrom, de Boor, Grunwald, and Vockley (2011), in an ECAR study with 3,000 students, found that more than half (53%) perceived the academic usefulness of Facebook to be limited or nonexistent. Other researchers (Madge, Meek, Wellens, & Hooley, 2009; Authors [in press]) agree that students' perceptions of educational work differ greatly from their notions of the purpose of Facebook. In these studies, students pointed out that Facebook is a social networking site to be used for social purposes rather than for schoolwork. Consequently, students intentionally establish boundaries to keep the two purposes separate.

2.3 Positive Effects Associated with using Facebook in Educational Contexts

While there are harmful effects associated with the use of Facebook, some studies indicate that that Facebook can positively affect communication and the involvement of students. Facebook can positively influence educational contexts by providing a way for students to contact and communicate with fellow classmates and instructors about course assignments or group projects (Aydin, 2012; Hew, 2011). Other studies indicate that Facebook expands Internet access (Manzo, 2009), assists with the collapse of previous borders and barriers (Schaffhauser, 2009), and increases involvement (Heiberger & Harper, 2008) and student engagement (Junco, 2011; Junco & Cole-Avent, 2008). Greenhow (2009) found Facebook to be a learning space for new literacy practices, and Roblyer et al. (2010) suggested that the social learning tool is a resource to support students' communication and collaboration with faculty. Additionally, Schroeder and Greenbowe (2009) compared students' use of Facebook groups with their use of discussion forums in a chemistry class and discovered that the students used Facebook more enthusiastically than the forums.

Wang, Woo, Quek, Yang, and Liu (2012) used a Facebook group as a substitute learning management system (LMS), which allowed the posting of announcements, sharing of ideas and resources, and implementing online discussions with success; yet, document support (PPT and PDF) was limited and a meaningful structure for the organization of discussions was lacking. A recent study (O'Bannon, Britt, and Beard 2013) that involved 96 preservice teachers who used a Facebook group to discuss course content

showed a significant increase in test scores from pretest to posttest. Further, these preservice teachers liked that the group activity resulted in a study guide for exams and that it provided easy access for communication and collaboration with other students.

Despite the fact that Facebook is a social networking site that most college students frequent to facilitate social relationships (Madge et al., 2009; Pempek et al., 2009), and it has been found to have effective collaborative academic potential (Mason, 2006; Selwyn, 2009) and positively affect classroom practice, student involvement (Aydin, 2012), and student engagement (Junco, 2011), we know little about how or if it can be used to improve learning.

2.4 Purpose of the Study

Considering the assertion that most college students use Facebook (Dahlstrom et al., 2011; Smith & Caruso, 2010) and the lack of evidence that it can be used to improve learning (Hew, 2011; Junco, 2011) ongoing research on Facebook in this area is needed. Our intention is to contribute information to the literature in this area, building on a previous study (O'Bannon et al, 2013) by the addition of a control group to determine how achievement is affected by the use of a Facebook group.

The purpose of this study was to examine changes in achievement when a Facebook group was used as a forum to share, answer, and discuss content-related questions in a technology course required for all students seeking teacher licensure. The research questions that guided the study are as follows:

1. What effect does using a Facebook group as a forum to share, answer, and discuss content-related questions have on achievement, as measured by change in knowledge versus no discussion.
2. What is preservice teachers' prior use of Facebook groups?
3. How does the treatment group use a course-specific Facebook group?
4. What are the perspectives of the treatment group on the use of Facebook as an educational tool?

3. METHODOLOGY

3.1 Participants

Ninety-seven preservice teachers who were enrolled in five sections of the required technology course were invited to participate in the study. Of these students, 90 (96%) completed the study. The mean age of the participants was 23.47. Seventy-four (82%) of the participants were female, and 16 (18%) were male. Ninety-four (94%) of the participants were White, four (4%) were Black, one (1%) was Asian, and one (1%) was Hispanic.

The five sections were randomly assigned to either the control group (CG) or the treatment (Facebook) group (FG). Within the CG, 37 (93%) of the students who were enrolled agreed to participate. Thirty (81%) were female, and seven (19%) were male. Within the FG, 53 (96%) of the students who were enrolled accepted the invitation to participate in the study. Forty-four (83%) were female, and 9 (17%) were male. All participants had a Facebook account prior to entering the class.

3.2 Data Sources

Guided by the recommendations of Creswell (2009), this study used a mixed-methods design, involving both quantitative and qualitative data collection/analysis to provide a comprehensive view of the data. Pre/post exam scores, online survey responses, and Facebook group "wall posts" provided the data used in this study.

The scores from the pre/post exams were used to answer the first research question. The pre/post exams that covered selected course content consisted of 50 multiple-choice questions that were developed by the authors of the course textbook, one of whom is the first author of this study, and adapted by the instructional team.

Content validity was established for the exam by using experts ($n = 6$) in the field of educational technology. Additionally, an expert in assessment techniques reviewed the survey and made suggestions for changes in some questions. Preservice teachers ($n = 300$) in the technology course took the exam in past

semesters, and questions have been revised for clarity based on their requests. Most questions were retained ($n = 45$), and five were revised as suggested by the experts and students to better communicate the questions. None were eliminated.

The exams were administered through the assessment feature in Blackboard and were given prior to and following the study. Pre/post online surveys were used to answer research questions two and four, and analysis of the wall posts was used to answer the third research question.

The first survey was developed by the researchers and was administered at the beginning of the semester. This survey consisted of a mix of single-answer, yes/no, and Likert-scaled questions using 5-point scales. This survey was used to determine whether the participants had Facebook accounts, their prior experience as members of a Facebook group, and their perceptions of using Facebook for educational purposes. Specifically, researchers asked participants if using Facebook would be convenient, helpful for their learning, or an invasion of their privacy and whether they considered Facebook to be used for personal/social interaction rather than for education. Finally, participants were asked to supply demographic data.

The second survey was developed by the researchers and was administered to the treatment group at the close of the semester. This survey consisted of open-response questions and Likert-scaled questions using 5-point scales. The scaled questions were used to compare, over time, the participants' perceptions of using the Facebook group for educational purposes. The open-response questions that were gathered extended data on the participants' perceptions of using Facebook for educational purposes as well as data relating to the management of the Facebook group, including reactions to an avatar that posted the questions, the pacing of questions, the notifications that were sent by Facebook each time a post was made, and other thoughts. The online surveys were administered by an on-campus research support center. Links to the surveys were provided at the course website.

The "wall posts" within the Facebook group were used to examine how the treatment group used the group and the level of their participation in the group. Questions related to course content were posted daily on the wall of the Facebook group for 5 weeks. FG members responded to the questions by contributing answers, "likes," or comments (see detailed explanation in the Procedures section below). These "wall posts" were analyzed for quantity, type, and content.

3.3 Data Collection and Analysis

In each class section, a neutral party distributed the information sheets, explained the study, and invited the students to participate. Participation in the research was voluntary with options for withdrawal at any time. The instructors were unaware of the identities of participants. The survey data was anonymous, managed by a campus research support center, and analyzed after the completion of the semester.

The pretest exam was administered at the beginning of the semester and provided baseline scores; the posttest was administered at the close of the semester. The online surveys (see Appendix B) were administered at the beginning and end of the study. Following the calculation of the survey results, the data were analyzed using SPSS statistical analysis software, and appropriate statistical tests were administered.

The researchers recorded the number and type of contributions on "the wall" weekly. At the conclusion of the study, the data were analyzed using SPSS statistical analysis software and frequencies were run. The content located on the wall and the open-response questions on the survey were analyzed further using the qualitative method described by Bogdan and Biklen (2006). This approach begins with organizing the materials into manageable sections followed by taking "long, undisturbed periods" (p. 185) to read through the entire collection of data. While reading through the material, a list of preliminary codes is created, after which the material is reread, and a formal coding list is created. Next, a final read-through is completed with the formal coding list, and the data is assigned a code. Finally, the data is reviewed and tested to ensure that the codes fit the data, modifying the list as needed.

4. RESULTS

4.1 Effect on Achievement

The first research question examined how achievement, based on change in knowledge, was affected as a result of using a Facebook group to discuss content-specific questions in a technology course versus no discussion. A Repeated Measures ANOVA was administered to compare pre/post exam scores to determine if changes in achievement differed for control/treatment groups. The interaction was not significant, $[F(1, 88) = .658, p = .420]$. Data for the pretest $M = 26.6$ and posttest $M = 40.3$ revealed a significant improvement over time, $[F(1, 88) = 625.505, p < .001]$.

4.2 Prior Use of a Facebook Group

The second research question examined the preservice teachers' prior use of Facebook groups. Almost all (85 or 94.4%) had participated as a member of a Facebook group. They were asked to identify the types of groups in which they participated. The data revealed that, contingent on the purpose of the group, some were ongoing, while others were limited in duration. The greatest number (69 or 81.1%) stated that they were members of groups created to organize an event, such as a wedding, birthday, party, or trip. More than half (58 or 64.4%) reported that they were members of groups aligned with organizations, such as sororities, fraternities, or clubs. Almost as many (55 or 61.1%) reported membership in a group related to academics, and a third (30 or 33.3%) reported that they were members of groups with a memorial or dedication purpose.

4.3 Use of a Course-specific Facebook Group

The third research question examined how the treatment group (FG) used the group in Facebook. The FG was required to participate in the activity, and their participation was linked to a grade, which was equivalent to 5% of the semester grade. Each member of the FG was expected to make five contributions per chapter, and the students could choose the type of contribution they wanted to make. The researchers recorded the number and type (answers, likes, comments, other) of contributions made weekly by individual members.

4.3.1 Answers

Twenty-seven (50.9%) of the group members provided 53 answers or partial answers to the 25 questions. Almost as many (26 or 49.1%) did not contribute answers. The number of answers provided by the 27 individual members varied, with most (16 or 29.6%) contributing one answer, six (11.1%) contributing two answers, two (3.7%) contributing three answers, and three members (5.6%) posting more than three answers. The structure of the answers ranged from very short and concise to longer statements, at times containing page numbers and/or direct quotes from the course textbook. There were, at times, multiple answers to a question. This occurred when incorrect answers were posted and someone corrected the answer or when answers were posted that were inadequate or did not fully respond to the question.

4.3.2 Comments

Nine (17%) members posted 11 comments to the group, but most (44 or 83%) did not contribute comments. The comments provided links to additional information and, typically, were accompanied by statements about how the information could be used. Some were accompanied by helpful text such as, "This site may be useful," or "Here is a list of some examples of graphic organizers that can be printed and used in the classroom!".

4.3.3 Likes

Most of the contributions (1,239 or 95%) posted by the members of the FG were classified as "liking." All group members participated in this manner. However, "liking" was the only way that 23 (43.5%) members of the group participated. Members "liked" both answers and comments, and occasionally some participants posted multiple "likes," with some "liking" up to six contributions in one day. Sometimes a member would make all of their contributions in one day and not return to the group until the following chapter; however, this occurred with only three students.

4.3.4 Other Posts

During the activity period, some participants posted remarks to questions that did not fall into any of the three main types of contributions (answers, comments, or likes). These posts focused primarily on what would be considered the social side of Facebook. For example, one participant posted, “Section 005 Represent!!!” after a fellow classmate answered a question correctly. This slang use of “represent” means to take pride in one’s group and was used multiple times by students in one of the course sections. Another responded, “#LIVE00Five.” The comment, a takeoff on a local news show (“Live at 5”), has a hashtag, commonly used on Twitter to trace topics and search for information or tweets related to a topic. In this case, the participants in one class section, which meets at 5 p.m., used this to represent their class (see Appendix E). Posts of this sort occurred randomly throughout the study period.

4.3.5 Perspectives on the Use of Facebook for Educational Purposes

The last research question used a 5-point Likert scale (1 = SD; 5 = SA) to examine perceptions of using Facebook for educational purposes. Participant responses were mixed, but more agreed than disagreed that a Facebook group could be used effectively for educational purposes $M = 3.36$; $SD = .982$.

In addition, four questions that appeared on the first and second surveys were compared to determine change over time. Overall, the data showed no significant change in participants’ perceptions from pretest to posttest, with the exception of their perceptions regarding the educational use of Facebook as being an invasion of their privacy.

Specifically, they were asked if using Facebook for educational purposes was convenient. Responses were mixed, but more agreed than disagreed that using Facebook for educational purposes was convenient. Results on the first survey revealed $M = 3.32$; $SD = 1.123$, while on the second, the data revealed $M = 3.34$; $SD = 1.055$. Results of a paired t -test ($t = -.110$, $df = 52$, $p = .913$) indicated that students did not change their perceptions of convenience from pretest to posttest significantly.

The participants were also asked if they thought that Facebook would be/was useful for their learning. Responses were mixed and somewhat neutral. Results on the first survey indicated that $M = 3.00$; $SD = 1.038$, while on the second, the data revealed that $M = 3.19$; $SD = .982$. Results of a paired t -test ($t = 1.218$, $df = 52$, $p = .229$) indicated that there was no significant change in their perceptions of Facebook as being useful to their learning.

Additionally, the participants were asked if they considered Facebook to be a personal/social media tool rather than an educational tool. Again, responses were mixed, but more agreed than disagreed that Facebook was personal/social rather than educational. Results on the first survey showed that $M = 3.26$; $SD = .902$, while on the second, the data revealed that $M = 3.34$; $SD = 1.055$. Results of a paired t -test ($t = .438$, $df = 52$, $p = .663$) indicated that the participants did not change their perceptions from pretest to posttest significantly.

Finally, the participants were asked if they thought that using Facebook would/did invade their privacy. Results on the first survey revealed that $M = 3.19$; $SD = 1.057$, while on the second, the data showed that $M = 2.68$; $SD = .996$. Results of a paired t -test ($t = 3.214$, $df = 52$, $p = .002$) indicated a significant change in perceptions from pretest to posttest; the students were less concerned about the use of Facebook becoming an invasion of privacy after participation.

5. CONCLUSION

The current study, the first of its kind in the literature on social learning, suggests that using a Facebook group has benefits but was not useful for increasing achievement. Yet, the study also revealed flaws in the design with respect to the expectations for contributions. Would a change in these expectations yield a different outcome? Additional research should be conducted to determine whether a change in design could influence achievement.

Some students are open to the use of Facebook for educational purposes while others are not, which is a deterrent to participation. Students must consider the activity valuable, and some accountability must be attached to participation, which should be structured to require more in-depth contributions.

While some students are quite willing to share their Facebook accounts for educational purposes, others are very offended at the suggestion of using it in that way. Encouraging students to view Facebook as another avenue for educational context is going to take time. Students must be comfortable with using this social networking tool for educational purposes and accept Facebook as an instructional method for it to be effective. To facilitate this comfort level, instructors should consider using Facebook in their instructional practices. In addition, activities should be planned carefully to enhance student buy-in.

Although a growing number of articles on the use of Facebook are appearing in the literature, there remains a dearth of empirical studies on the effect of this social network on achievement. While the value of this vastly popular tool remains unknown and seems insignificant at this point, researchers should conduct studies that build on the findings in this study, perform experimental research, and evaluate how Facebook can be used effectively, if at all, in education.

REFERENCES

- Aydin, S. (2012). A review of research on Facebook as an educational environment. *Educational Technology, Research and Development*, 60, 1093-1106. doi:10.1007/s11423-012-9260-7
- Bogdan, R. C., & Biklen, S. K. (2006). *Qualitative research for education: An introduction to theories and methods* (5th ed.). Boston, MA: Allyn & Bacon.
- Butler, K. (2010). Tweeting your own horn. *District Administration*, 46(2), 41-44.
- boyd, D. M., & Ellison, N. B. (2008). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13(1), 210–230. doi:10.1111/j.1083-6101.2007.00393
- Catanzaro, M. F. (2011). Indirect aggression, bullying and female teen victimization: A literature review. *Pastoral Care in Education*, 29(2), 83-101.
- Cheung, C., Chiu, P-Y., & Lee, M. (2010). Online social networks: Why do students use Facebook? *Computers in Human Behavior*, 27(4), 1337–1343.
- Creswell, J. C. (2009). *Educational research: Planning, conducting and evaluating quantitative and qualitative research* (3rd ed.). Upper Saddle River, NJ: Pearson Education, Inc.
- Dahlstrom, E., de Boor, T., Grunwald, P., & Vockley, M. (2011). *The ECAR national study of undergraduate students and information technology, 2011* (Research Report). Boulder, CO: EDUCAUSE Center for Applied Research. Retrieved from <http://net.educause.edu/ir/library/pdf/ERS1103/ERS1103W.pdf>
- Facebook. (2013a). *Key facts: Statistics*. Retrieved from <http://newsroom.fb.com/Key-Facts>
- Facebook. (2013b). *Newsroom: Timeline*. Retrieved from <http://newsroom.fb.com/Timeline>
- Golder, S. A., Wilkinson, D., & Huberman, B. A. (2007, June). Rhythms of social interaction: Messaging within a massive online network. In C. Steinfield, B. Pentland, M. Ackerman, & N. Contractor (Eds.), *Proceedings of Third International Conference on Communities and Technologies* (pp. 41–66). London, England: Springer.
- Greenhow, C. (2009). Tapping the wealth of social networks for professional development. *Learning and Leading with Technology*, 36(8), 10-11.
- Heiberger, G., & Harper, R. (2008). Have you Facebooked Astin lately? Using technology to increase student involvement. *New Directions for Student Services*, (124), 19-35.
- Hew, K. F. (2011). Students' and teachers' use of Facebook. *Computers in Human Behavior*, 27(2), 662–676. doi:10.1016/j.chb.2010.11.020
- Hughes, G. (2009). Social software: New opportunities for challenging social inequalities in learning? *Learning, Media and Technology*, 34(4), 291–305. doi:10.1080/17439880903338580
- Jones, S., & Fox, S. (2009). *Generations online*. Washington, DC: Pew Internet and American Life Project. Retrieved from <http://www.pewinternet.org/Presentations/2009/Generations-Online-in-2009.aspx>
- Junco, R. (2011). The relationship between frequency of Facebook use, participation in Facebook activities, and student engagement. *Computers and Education*, 58, 162-171.
- Junco, R., & Cole-Avent, G. (2008). An introduction to technologies commonly used by college students. *New Directions for Student Services*, 124, 3-17.
- Kirschner, P. A., & Karpinski, A. C. (2010). Facebook and academic performance. *Computers in Human Behavior*, 26, 1237–1245.
- Kolek, E. A., & Saunders, D. (2008). Online disclosure: An empirical examination of undergraduate Facebook profiles. *NASPA Journal*, 45(1), 1–25. Retrieved from <http://publications.naspa.org/naspajournal/vol45/iss1/art2/>

- Lave, J., & Wenger, E. (1991). Situated learning: Legitimate peripheral participation. In R. Pea & J. S. Brown (Eds.), *American anthropologist* (Vol. 95, p. 138). Cambridge, England: Cambridge University Press. doi:10.2307/2804509
- Lenhart, A. (2009). *Adults and social network sites*. Washington, DC: Pew Internet and American Life Project. Retrieved from <http://www.pewinternet.org/Reports/2009/Adults-and-Social-Network-Websites.aspx>
- Lenhart, A., Purcell, K., Smith, A., & Zickuhr, K. (2010). *Social media and young adults*. Washington, DC: Pew Internet and American Life Project. Retrieved from <http://www.pewinternet.org/Reports/2010/Social-Media-and-Young-Adults.aspx>
- Lewis, J., & West, A. (2009). "Friending": London-based undergraduates' experience of Facebook. *New Media & Society*, 11(7), 1209–1229.
- Madge, C., Meek, J., Wellens, J., & Hooley, T. (2009). Facebook, social integration and informal learning at university: "It is more for socialising and talking to friends about work than for actually doing work." *Learning, Media and Technology*, 34(2), 141–155. doi:10.1080/17439880902923606
- Manzo, K. K. (2009). Filtering fixes. *Education Week*, 29(2), 23–25.
- Mason, R. 2006. Learning technologies for adult continuing education. *Studies in Continuing Education*, 28(2), 121–33.
- Mazer, J. P., Murphy, R. E., & Simonds, C. J. (2007). I'll see you on "Facebook": The effects of computer-mediated teacher self-disclosure on student motivation, affective learning, and classroom climate. *Communication Education*, 56(1), 1–17. Retrieved from <http://www.tandfonline.com/doi/abs/10.1080/03634520601009710>
- Mazman, S. G., & Usluel, Y. K. (2010). Modeling educational usage of Facebook. *Computers & Education*, 55, 444–453.
- O'Bannon, B., Britt, V. & Beard, J. (2013). Using a Facebook Group as an Educational Tool: Effects on Student Achievement. *Computers in the Schools*, 30(3). 1-19.
- Olson, J., Clough, M., & Penning, K. (2009). Prospective elementary teachers gone wild? An analysis of Facebook self-portrayals and expected dispositions of preservice elementary teachers. *Contemporary Issues in Technology and Teacher Education*, 9(4), 443–475.
- Pempek, T. A., Yermolayeva, Y. A., & Calvert, S. L. (2009). College students' social networking experiences on Facebook. *Journal of Applied Developmental Psychology*, 30(3), 227–238. Retrieved from <http://dx.doi.org/10.1016/j.appdev.2008.12.010>
- Roblyer, M. D., McDaniel, M., Webb, M., Herman, J., & Witty, J. V. (2010). Findings on Facebook in higher education: A comparison of college faculty and student uses and perceptions of social networking sites. *Internet and Higher Education*, 134–140.
- Schaffhauser, D. (2009). Boundless opportunity. *T.H.E. Journal*, 36(9), 13–18.
- Schroeder, J., & Greenbowe, T. J. (2009). The chemistry of Facebook: Using social networking to create an online community. *Innovate: Journal of Online Education*, 5(4), 1–7.
- Siegle, D. (2010). Cyberbullying and Sexting: Technology Abuses of the 21st Century. *Gifted Child Today*, 33(2), 14–16.
- Selwyn, N. (2009). Faceworking: Exploring students' education-related use of Facebook. *Learning, Media and Technology*, 34(2), 157–174. doi:10.1080/17439880902923622
- Smith, S. D., & Caruso, J. (2010). The ECAR Study of Undergraduate Students and Information Technology, 2010 (Research Study, Vol. 6). Boulder, CO: EDUCAUSE Center for Applied Research, 2010.
- Steinbrecher, T., & Hart, J. (2012). Examining Teachers' Personal and Professional Use of Facebook: Recommendations for teacher education programming. *Journal of Technology and Teacher Education*, 20(1), 71–88.
- Wang, Q., Woo, H., Quek, C., Yang, Y., & Liu, M. (2012). Using the Facebook group as a learning management system: An exploratory study. *British Journal of Educational Technology*, 43(3), 428–438. doi:10.1111/j.1467-8535.2011.01195.x
- Wihbey, J. A. (2010). College Student Social Networking: Its Importance and Its Issues. *Visions*, 6(1), 20–22.