

Student-Teacher Interaction on Facebook: What Students Find Appropriate

By Berhane Teclehaimanot and Torey Hickman

Abstract

Web 2.0 technologies such as Facebook, a popular social networking site, provide educators with new possibilities for reaching their students. As these technologies are new, there is not a total understanding of how these technologies could best be used in education. This study helps to develop this understanding by investigating how appropriate students find student-teacher interactions on Facebook. The results indicate that students find passive behaviors more appropriate than active behaviors with no difference depending on whether students or teachers perform the behaviors. Additionally, men find student-teacher interactions on Facebook more appropriate than women while no difference exists between undergraduate and graduate students, and age was not related to finding the interactions more or less appropriate.

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Emerging technologies—especially those referred to as Web 2.0 technologies, change the way people access, interact with, create, and share data and information (Ajjan & Harts-horne, 2008; Dearstyne, 2007; Maloney, 2007; Robbie & Zeeng, 2008). This change is taking place due to the emergence of such online technologies as weblogs (blogs), wikis, and social networking sites (SNS) as well as new mobile hardware capabilities for accessing these online technologies. These emerging technologies have the potential to significantly impact education.

An example of a Web 2.0 technology with the potential to positively impact education is social networking sites such as Facebook, MySpace, Flickr, and YouTube. These technologies allow users to create personal profiles of themselves as well as connect, network, and interact with family, friends, and others with similar interests. Cardon (2009) provides numbers that illustrate just how prevalent the use of SNS has become, reporting that nine SNS boast over 50,000,000 registered users. Topping the list is Facebook with 124,000,000 registered users, followed by Windows Live Spaces with 120,000,000. The numbers continue to grow, with Facebook recently advertising over 200,000,000 registered users (Zuckerberg, 2009).

SNS promote social interaction between individuals, potentially supporting active learning, social learning, and student knowledge construction within a student-centered, constructivist environment (Ferdig, 2007). According to Vygotsky's theory, known as sociocultural perspective, cognitive growth is influenced by society and culture and not performed in isolation (Driscoll, 2005; Ormrod, 2004). Ormrod argues that knowledge construction may occur as an independent activity of the individual or when individuals work together (known as social construction). Davidson-Shivers and Rasmussen (2006) state, according to Ormrod, "both Piaget and Vygotsky argued for the importance of peer interaction in learning and cognitive development" (p. 403). Beyond interaction with peers, Ferdig explains, for example, that social networking sites can connect students with Vygotsky's (1978) more knowledgeable others (MKO)

within students' zones of proximal development. The candidates for filling the role of the MKO are not limited to the classroom or family, but theoretically anyone in the world who is online.

Clark and Peterson (1985) claim teachers and their beliefs may play a major role in education reform since teachers' beliefs lead to actions and these actions impact students. Since their beliefs may impact their actions, teachers' beliefs play a critical role in restructuring science education. Several research models have been employed to examine human beliefs because of the growing interest in the role of peoples' beliefs and their relationship to behavior (Ajzen & Madden, 1986). These authors point out that beliefs are formed by perceptions of how others view the concept in question, and a person's beliefs *precede* actual behavior. Thus, it is legitimate currently to look only at perceptions with future research examining actual behavior.

Facebook in Higher Education

Facebook is a prominent example of a SNS. The large number of Facebook users was cited previously, and among higher education students its use appears to be even more widespread. Of the many SNS available, Facebook seems to be the network of choice among university-aged students (Ellison, 2008; Milshtein, 2007). Stutzman (2006) reported that 90% of the undergraduate students in his study indicated that they use Facebook. Among incoming first-year students during the first week of classes, Lampe, Ellison, and Steinfield (2008) reported that 84% of students reported being members of Facebook; a second survey at the beginning of the next semester had 95.5% of students indicating they were Facebook members. Hargittai (2007) reported that 78.8% of undergraduate students indicated they "sometimes" or "often" use Facebook. Fogel and Nehmad (2009) also reported that more than three-fourths (78.6%) of their participants from a four-year undergraduate college had created a Facebook profile. Therefore, while there may be other online environments and tools to promote social learning, it makes sense to utilize Facebook as a higher education learning tool because students are already engaging in this online environment.

The popularity of Facebook among college students might have its roots in the founding of Facebook as a site designed for college students; at its inception in 2004, Facebook required all users to register using an e-mail address ending in .edu. While faculty and staff might also

receive .edu e-mail address, they did not join Facebook in large numbers. Gross and Acquisti (2005) reported that only 1.5% of the faculty population at one university used Facebook. Over time, however, the registration restrictions have been loosened until presently anyone may join. Now, in addition to the large number of student members, non-student adults are registering on Facebook in large numbers. Lipka (2007) reports that adults are the fastest growing group of Facebook users and notes that professors are among these adults.

As more and more faculty become Facebook users, the opportunities for student-teacher interaction to occur on Facebook increases, especially considering that communication with students is one reason presented in Hewitt and Forte (2006) for professors to register on Facebook. Furthermore, if teachers wish to engineer social learning opportunities available through Facebook, students and teachers will have to interact with each other. The student response to these interactions is not always positive; the literature provides a mix of positive and negative reports involving student responses to their teachers joining Facebook.

One issue addressed in the literature is whether or not teachers should even be on Facebook. Hewitt and Forte (2006) report 66% of students thought it was acceptable for teachers to be on Facebook; however, there were gender differences with 73% of men finding it acceptable but only 35% of women finding it acceptable. Mazer, Murphy, and Simonds (2007) report a nearly even divide between students finding teacher use of Facebook appropriate and inappropriate.

Other topics of investigation regarding teacher Facebook use are the positive and negative effects on student attitudes associated with their teachers being on Facebook. Among the potential positive effects were students having the ability to better know their professors, students developing a positive perception of their teachers, and students anticipating a more positive classroom environment (Hewitt & Forte, 2006; Mazer, et al., 2007). In order to better know their teacher as a person, however, they will need access to the teacher's personal information provided through profiles, status updates, photos, and so on. However, in doing so, they risk the possible negative outcomes of Facebook interaction—chiefly, losing their professionalism.

On one hand there appears to be a large portion of students who do not want teachers on Facebook, especially female students. On the other hand, there is the potential for improved

student attitude toward their teachers, which could translate to a more positive educational experience. In order to most effectively utilize Facebook as a learning tool to create social learning opportunities, teachers must understand how to interact with their students in a way that promotes the improved positive perception of the teacher and classroom environment while not engaging in behaviors which might harm these perceptions.

What is Appropriate Student-Teacher Facebook Interaction?

Facebook provides opportunities for teachers and students to interact in new ways, but the guidelines and expectations for behavior have not been clearly defined. For example, Hewitt and Forte (2006) report many students did not want their relationship with their professors to become a social relationship, preferring to keep it professional. Cited is one response that it would be strange for the student to receive a *poke*, a virtual nudge to say hello, from a teacher. Another area of concern is *friending* students on Facebook (Lipka, 2007; Young, 2009). The convention seems to be that it is less acceptable for professors to invite students to become friends than the other way around. As there are a number of unresolved issues related to integrating Facebook into education, this study provides a better understanding of how appropriate students find interacting with their teachers on Facebook.

In providing this better understanding, a number of research questions are addressed. Research Question (RQ) 1 asks which types of interactive behaviors are most appropriate. An appropriate behavior is defined in this context as something with which the students are comfortable; in other words, it would not cause discomfort for the students and risk negatively affecting the learning environment. Interactive behaviors on Facebook are labeled by the authors as either *active* or *passive*. Examples of active behaviors would be sending a message, commenting on photos, or sending a *poke*—the performer is engaging another user. Examples of passive behaviors would be reading through another's profile information, viewing photos, or watching videos—the performer is looking at what another user has posted. These behaviors can be performed by either students or teachers. This provides four categories of interactive behaviors which students might find more or less appropriate (i.e. with which they would feel more comfortable or less comfortable): student/active, student/passive, teacher/active, and teacher/passive.

Based on the literature, there are variables that might be related to how appropriate students find student-teacher interaction on Facebook. Understanding these variables' relationships with attitudes toward student-teacher interaction on Facebook will help teachers to adapt their Facebook integration to unique classrooms and even students.

One variable is whether students want teachers on Facebook. As was previously cited, large numbers of students were found to not want teachers on Facebook. Hewitt and Forte (2006) reported that 66% of students indicated that faculty presence on Facebook was acceptable, while 33% did not. Mazer et al. (2007) found a roughly even split in the proportions of students finding faculty on Facebook appropriate and inappropriate. Do students who do not want faculty on Facebook differ from other students in how appropriate they find student-teacher interactions on Facebook (RQ2)?

However, while Hewitt and Forte (2006) reported that while 66% of students found the presence of teachers on Facebook acceptable, there were differences between men and women. 73% of men found the faculty presence acceptable whereas only 35% of women found faculty presence acceptable. Since men and women differ in whether or not they find the presence of faculty on Facebook acceptable, men and women could differ in how appropriate they find student-teacher interaction on Facebook (RQ3), which, depending on classroom demographics, could impact whether or not utilizing Facebook in the classroom is appropriate.

Another variable considered is undergraduate versus graduate status (RQ4). Young (2009) gave an example of one professor who generally does not become Facebook friends with undergraduate students but who does become friends with graduate students. Lipka (2007) referred to professors who are wary of friending undergraduates without mentioning graduate students. These anecdotal accounts represent the teacher's point of view that it may be more appropriate to interact with graduate students on Facebook than with undergraduate students. There is no discussion, however, of whether or not there are differences in how appropriate the graduate and undergraduate students themselves find student-teacher inter-

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action on Facebook. Despite a lack of empirical evidence, these published anecdotal suggestions could lead to Facebook being disregarded in the undergraduate classroom because instructors believe that students would find its use inappropriate. This study empirically investigates the issue from the student perspective.

The final variable considered is student age (RQ5). Student-teacher interaction on Facebook is addressed in the literature as though it is more or less appropriate depending on students' graduate or undergraduate status. Graduate students are generally older than undergraduate students. Rather than finding that student appropriateness measures are related to graduate or undergraduate status, any difference in the students' appropriateness measures might be related to student age.

Materials and Methods

Data were collected using a survey instrument designed by the research team. The first section of the instrument consisted of 46 Likert-type items. The items represented 23 unique behaviors on Facebook with each behavior written once as an item with the student as the performer and once as an item with the teacher as the performer. As stated earlier, the behaviors represented four categories based on who would perform the behavior and whether the behavior was active or passive: student/active, student/passive, teacher/active, and teacher/passive. All items were answered on a four-point Likert-type scale that indicates the amount of agreement between the items and the students: strongly disagree, disagree, agree, and strongly agree.

The survey included an additional, separate item followed by demographic items. The separate item asked the students to indicate their level of agreement with statements that faculty should be allowed on Facebook; this item was answered on the same four-point Likert-type scale as the first 46 items. The demographic items asked students to provide their sex, class rank, and age.

Sample

The participants in this study were students enrolled in selected courses in the College of Education at the University of Toledo. Four courses, two at each of the undergraduate and graduate levels, were selected. All students in the selected courses present when the data were collected were invited to participate. All students invited to participate elected to participate in the study. Students who were enrolled in multiple selected courses only participated once. This resulted in an initial sample size of

60, roughly split between undergraduate students ($n=31$) and graduate students ($n=29$). However, as discussed later, eight subjects were removed from the final analysis because their response strings misfit with the requirements of the Rasch measurement model. This resulted in a final sample size of 52, consisting of 25 undergraduate students and 27 graduate students.

All undergraduate students were pre-service teachers. Some graduate students were in-service teachers. However, items were responded to solely from the perspective of a higher education student. Students were instructed to assume their professor had a Facebook account. Students responded to questions with this specific teacher in mind. Therefore, it is noteworthy that the selected courses were all taught by male professors over the age of 40. The selection of teachers representing only one sex and a general age demographic (over 40) was done in an attempt to control for interaction effects based on the sexes and ages of the students and teachers participating in the study; the selection of male professors over 40 years of age was made purely from convenience. It is unknown whether or not the results would have differed were the courses taught by, for example, female teachers or younger male teachers.

Students were not required to have Facebook accounts to participate, but they were instructed to participate only if they were familiar with Facebook. The Rasch analysis ensured that all students whose results were retained in the analysis had answered the questions consistent with the rest of the sample.

Procedure

One member of the research team attended each of the selected courses. Students were briefly introduced to the study and their rights as participants, and they were then asked to participate in the study. The data collection instruments were distributed, completed, and collected with the member of the research team available to answer any questions or respond to any concerns the participants might have.

Obtaining the measure of the appropriateness of student-teacher interaction on Facebook

The participants' appropriateness measures were obtained through an analysis using the Rasch Rating Scale Model (Andrich, 1978). The data collected on the 46 Likert-type items based on Facebook behaviors were analyzed through the use of the WINSTEPS (Linacre, 2006b) soft-

ware package. There were three prominent reasons for conducting the Rasch analysis. Rasch analysis was used to provide “evidence that the items [written by the research team] work well together to represent one underlying path of inquiry” (Bond & Fox, 2007, p. 66). For the set of items developed by the research team to represent this one path of inquiry, one requirement is the set must consist of items that represent “a hierarchical ‘more than/less than’ line of inquiry” (Bond & Fox, 2007, p. 41; see Thurstone & Chapman, 1929). To do this, the items must be of varying difficulties, with some being easier or harder for the students to endorse. Otherwise, if the items are of the same difficulty, “no direction [less to more] has been established and so no variable has yet been implied” (Wright & Stone, 1979, p. 83). An additional requirement is the data must meet the specifications of the Rasch model, which describes the kind of data necessary for fundamental measurement.

Secondly, the Likert-type scoring system used to collect the data produced ordinal level data, which was inappropriate for the statistical tests that the research team wanted to conduct (e.g., ANOVA; see Wright, 1996). As Wright (1996) stated: “It is popular to analyze these ordinal integer labels as though they were interval measures ... However, there is no need to make this mistake. Rasch measurement provides a simple, practical way to construct linear measures from any ordered nominal data” (p. 4). The Rasch analysis provided the research team with interval level, linear measures for how appropriate each student found student-teacher interaction on Facebook.

Finally, just as the Rasch analysis provided interval level measures for how appropriate each student found student-teacher interaction on Facebook, the analysis also provided interval level measures for how difficult it was for students to endorse each item. These Rasch-calibrated item difficulty measures made it possible for the research team to investigate which types of behaviors students found more appropriate.

Data Analysis

After the Rasch analysis was conducted to determine that the set of items did indeed represent one path of inquiry (or, one variable), and measures for the students and items were obtained, appropriate statistical procedures were conducted to answer the research questions. Among the statistical procedures were analyses of variance, conducting t-tests, and measuring the correlations of variables. An alpha level of .05 was used for all statistical tests.

Results

The initial analysis of the 46 behavioral items revealed problems with the rating scale according to the guidelines provided by Linacre (2002). The specific problem was the large distance between the disagree/agree and the agree/strongly agree Rasch-Andrich thresholds. Whereas a difference of up to five logits between thresholds is acceptable, the distance in this instance was around nine logits. This indicates that the four-category rating scale could negatively affect the ability to draw conclusions based on the data. Also, while not outside the acceptable limits, observations of the strongly agree category were much more rare than observations of the other response categories. Therefore, it was determined to collapse the agree and strongly agree categories into one, general, agree category. The subsequent analysis of the new three-category rating scale indicated that the rating scale met the guidelines of Linacre (2002). As such there appears to be no indication that the three-category rating scale would negatively affect the ability to draw conclusions from the data.

The analysis continued by investigating whether or not the items were useful for defining a single variable of appropriateness of student-teacher interaction on Facebook. The requirements are that the items are of varying difficulty and that the items produce data that fits the Rasch model, which describes the kind of data necessary for fundamental measurement. In addition, Linacre (2006a) suggests that the items should account for at least 60% of the variance in the data for the set of items to be considered unidimensional.

Initial investigation indicated that the items met the requirement for varying levels of difficulty. Next, the fit statistics for both items and students were investigated according to the guidelines of Smith (1996) and Wright and Linacre (1994). Misfitting items and persons confound the interpretation of the variable, and their removal can improve the interpretation of the variable. One item was shown to

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misfit with a standardized outfit statistic outside of the acceptable ± 2 range. The researchers were unable to uncover underlying causes for why the item was misfitting, and it was removed from the analysis, leaving 45 items. Additionally, student fit statistics indicated potentially misfitting persons, and one student had a negative point-measure correlation. Negative point-measure correlations indicate disruptive response strings, and this student was removed. No underlying patterns of misfit were uncovered among the potentially misfitting students, and seven misfitting students were removed, resulting in a final sample size of 52 students.

After the removal of the misfitting item and students, it was again investigated whether or not the items represented varying levels of difficulty. The items were found to be of varying difficulties. Model separation was 3.44 with a Rasch reliability of .92—Rasch reliabilities are generally a more conservative equivalent to Cronbach Alpha (Fischer, 2008; Linacre, 2006a). The items were also useful for distinguishing among students' levels of appropriateness of student-teacher interaction on Facebook. Model separation for students was 4.11 with a Rasch reliability of .94. A principle contrasts analysis indicated that the primary linear Rasch measure accounted for 92% of the variance in the data, indicating that one unidimensional variable was measured. The researchers then proceeded on the basis that they had obtained interval level measures of the items' difficulties and the students' levels of appropriateness of student-teacher interaction on Facebook.

Research Question Analyses

RQ1 was investigated through an analysis of variance in which the item difficulty measures of the four interaction categories (Student/Passive, $M = -1.07$; Student/Active, $M = .65$; Teacher/Passive, $M = -.50$; Teacher/Active, $M = 1.39$) were examined for differences; Figure 1 shows the item difficulty measures of the individual items organized by interaction category, and the items themselves can be found in Appendix A. The analysis was significant, $F(3, 41) = 12.776$, $p < .001$. Post-hoc Scheffe tests showed significant pairwise differences between Student/Passive and Student/Active ($p = .006$), Student/Passive and Teacher/Active ($p < .001$), and Teacher/Passive and Teacher/Active ($p = .001$). Two additional independent t-tests were run on the item difficulty measures. The first compared Passive behaviors ($M = -.76$) and Active behaviors ($M = 1.04$); the analysis was significant, $t(43) = -5.70$,

$p < .001$. The second t-test compared Student behaviors ($M = -.34$) and Teacher behaviors ($M = .32$); the analysis was not significant, $t(43) = -1.65$, $p = .107$.

For the analysis of RQ2, endorsement of the strongly disagree and disagree response categories were infrequently observed; therefore they were combined into one disagree category. Investigation continued with an analysis of variance in which the student appropriateness measures of the three response categories (disagree, $M = 1.33$; agree, $M = 2.89$; strongly agree, $M = -.63$) were examined for differences. The analysis was significant, $F(2, 47) = 4.78$, $p = .013$. Post-hoc Scheffe tests showed a significant difference between the agree and strongly agree categories ($p = .014$).

RQ3 was investigated through an independent t-test, comparing the appropriateness measures of females ($M = 1.25$) and males ($M = 3.05$); Levene's test of the homogeneity of variance indicated that equal variance could not be assumed. The analysis was significant, $t(47.53) = -2.48$, $p = .017$.

RQ4 was investigated through an independent t-test, comparing the appropriateness measures of undergraduate students ($M = 2.53$) and graduate students ($M = 1.01$); Levene's test of the homogeneity of variance indicated that equal variance could not be assumed. The analysis was not significant, $t(32.5) = 1.59$, $p = .122$.

For analyzing RQ5, a Pearson correlation addressed the relationship between students' ages and their appropriateness measures. The correlation was not significant, $r(49) = .115$, $p = .426$.

Discussion

The statistical results indicate that there are differences in how appropriate students find different behaviors on Facebook. The most acceptable behaviors were Student/Passive, followed by Teacher/Passive, Student/Active, and Teacher/Active. Significant differences were found between the acceptability measures of Student/Passive behaviors and the measures of both groups of active behaviors. Teacher/Passive behaviors' measures were not significantly different from the measures of Student/Passive and Student/Active behaviors but were significantly different than the measures of Teacher/Active. Further testing revealed that there was no significant difference between the appropriateness measures of behaviors performed by students and those performed by teachers, but there was a significant difference between the acceptability of active and passive behaviors. The students found passive behaviors significantly more ac-

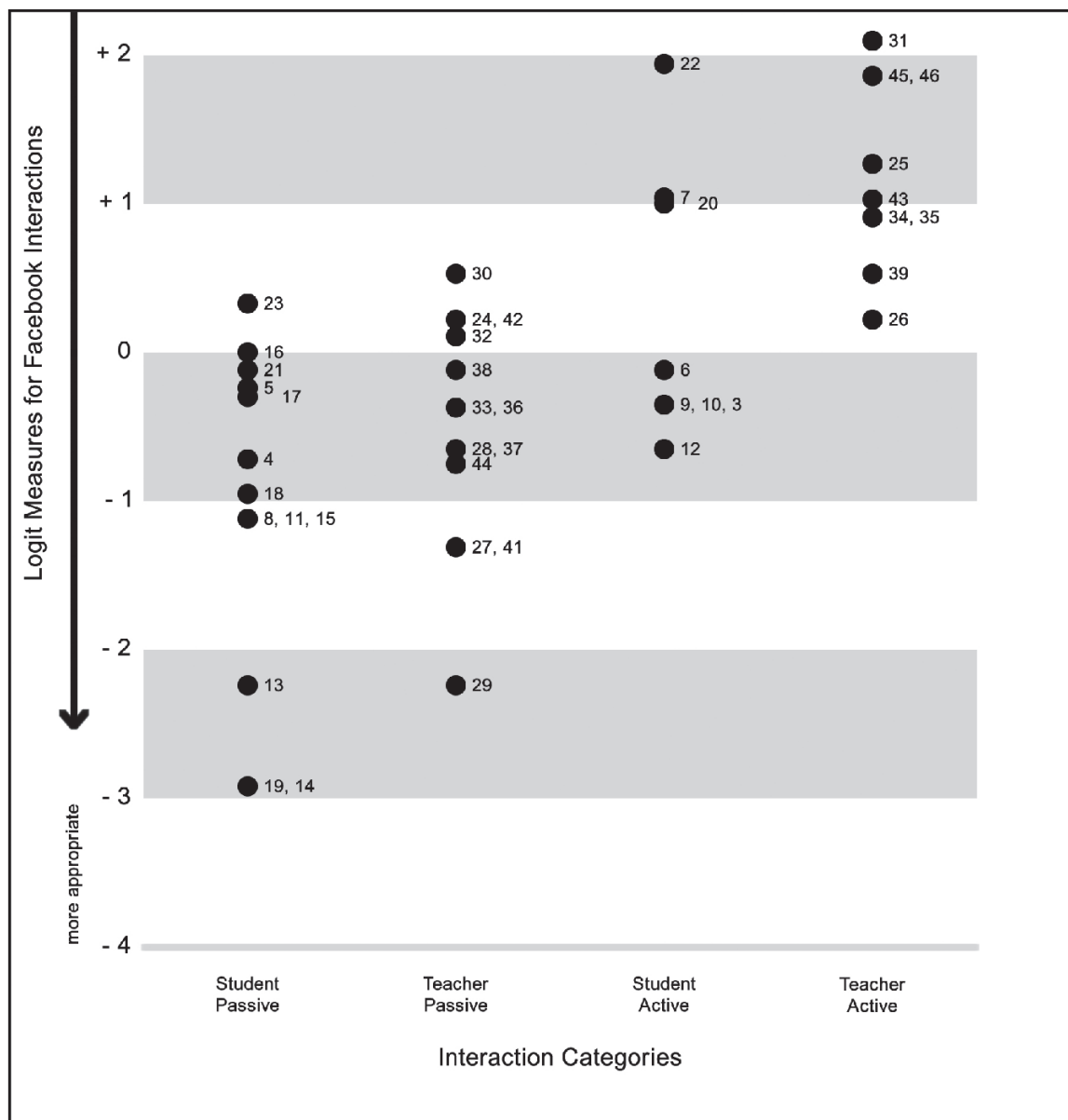


Figure 1. Each item is located along the logit scale according to its item difficulty measure (i.e., how appropriate did students find the behavior), and the items are organized by interaction category.

ceptable than active behaviors, regardless of who was performing the behavior.

Further investigation of the least appropriate behaviors provides an even clearer picture of which behaviors students would be most uncomfortable with. The two least appropriate behaviors were sending pokes. The student poking the teacher was the least appropriate behavior, followed by the teacher poking the student. It appears that it would be best for teachers to refrain from sending a poke to their students. In cases where students have been absent from class for a few sessions, sending a poke might seem like an effective, unobtrusive way to get their attention and let them know that their absence has been noticed. However, it appears that students

would be more comfortable with an alternative approach (e.g., sending a message).

The next eight least appropriate behaviors included all seven of the commenting items, indicating that, in general, students are somewhat uncomfortable with commenting on items (e.g., photos) posted by their teachers and with their teachers commenting on things they have posted. Located within this group of items involving commenting was the item in which the teacher sends the student a friendship invitation. It should be noted, however, that while these items were the least appropriate behaviors after sending a poke, their item difficulty measures were located around the mean measure of the sample, which indicates that from

the student perspective these behaviors seem to be on the border between appropriateness and inappropriateness. Teachers, therefore, should probably expect variability among their students in how appropriate they would find these behaviors.

As teachers and educators will be more and more inclined to incorporate Web 2.0 technologies, specifically Facebook in this instance, it is

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important that they understand how to do so effectively and also in a manner appropriate for their students. They must understand how students feel about specific behaviors in order to avoid potentially negative unintended consequences, as was illustrated above in regard to poking students on Facebook. What the teacher might intend as a way of connecting with students (e.g., commenting on their status or photos), might unintentionally cause the student to withdraw from the teacher as the student found the behavior inappropriate.

These results have significant application for teacher educators. The standards of the National Council for Accreditation of Teacher Education (NCATE; NCATE, 2008) clearly state that pre-

service teachers should be trained to effectively use technology to enhance learning. Working within these standards, teacher education faculty are called upon to integrate technology into their own classrooms, modeling effective technology integration for their own students. Firstly, therefore, a teacher educator's incorporation of technology (e.g., Facebook) needs to be done in a manner which will enhance the learning of the pre-service teachers in the educator's classroom; teacher educators need to be aware of how students are likely to respond to certain interactive behaviors in Facebook to ensure that they are offering the greatest educational opportunity to their students.

Secondly, as it would seem likely that negative educational experiences with a particular technology during their own education would reduce the likelihood of pre-service teachers to later incorporate the technology in their own classrooms, modeling the integration of Face-

book to enhance learning needs to be done in a way that the pre-service teachers (i.e., college students) find appropriate. Otherwise, teacher educators risk alienating their pre-service teachers from seeing Facebook as an acceptable, beneficial educational tool, potentially resulting in the loss of educational opportunities through Facebook of the future students of the disenfranchised pre-service teachers.

Moving on to the second research question, the results of the analysis concerning whether or not faculty should be allowed on was unexpected. If the results of the analysis of variance were to be significant, the researchers had expected that the results would show that the measures of how appropriate students found student-teacher interactions on Facebook would increase with the response categories; the student measures would increase from those disagreeing that faculty should be allowed on Facebook to those who agreed and ultimately to those who strongly agreed. In other words, the researchers expected the students who found student-teacher interaction least appropriate would be more likely to disagree that faculty should be allowed on Facebook, while those who strongly agreed faculty should be allowed on Facebook would find the interactions most appropriate. However, those who strongly agreed that faculty should be allowed on Facebook found the interactions least appropriate, followed by those who disagreed and then those who agreed.

The statistical analysis found significant differences between the response categories, with post hoc testing indicating that the measures of those who strongly agreed were significantly lower than those who simply agreed. The appropriateness measures of those who disagreed were between the agree and strongly agree groups without significant differences. The research team is led to believe that while statistically significant results were, these results may be anomalies with little practical significance. Based on these results it seems likely there is no practical relationship between how appropriate students find student-teacher interaction on Facebook and whether they believe that faculty should be allowed on Facebook.

The final three statistical procedures looked for differences in appropriateness measures based on three demographic criteria: gender, undergraduate/graduate status, and age. A significant difference was found between men and women. Men found student-teacher interaction on Facebook significantly more appropriate than women. This result seems consistent with previously published research, which had indicated that men found the presence of faculty on

Facebook more acceptable than women. These results might be affected by the selection of only male instructors; students might find interacting with female instructors differently than they do male instructors.

Regarding graduate students versus undergraduate students, the literature provides guidelines for interacting with students on Facebook, which indicate that it might be more appropriate to interact on Facebook with graduate students than undergraduate students. The results of this study indicate that, from the student perspective, there is no difference. No significant difference was found between how appropriate undergraduate students and graduate students found student-teacher interactions on Facebook. Additionally, no relationship between the appropriateness measures and age was found. Older students were no more likely to find interacting with teachers on Facebook acceptable than younger students were.

Conclusions

This study was intended to help improve the use of Facebook by faculty in educational settings. By providing an understanding of the types of student-teacher interactions on Facebook which students find more acceptable, the researchers hope that faculty can effectively utilize Facebook to create positive educational experiences for their students. Interactive behaviors in this paper were categorized based on who performed the behavior: students or teachers. Behaviors were also categorized by whether or not the behavior was active (e.g., commenting) or passive (e.g., viewing or reading). There was no difference based on who performed the behavior. However, students did find passive behaviors more appropriate than active behaviors. Engaging in passive behaviors would allow teachers and students the opportunity to learn more about each other as people, which would allow for an improvement in student attitudes toward their teachers and the learning environment, as was discussed in the Introduction section of this paper. As students and teachers understand each other better, there is potential for improved relationships and experiences in the classroom, which would hopefully lead to more positive learning outcomes.

Additionally, the results of this paper indicate there is a significant difference between men and women in how appropriate they found student-teacher interactions on Facebook. Men found such interactions significantly more appropriate than did women. This has very real implications in the classroom, as any reluctance to engage in

interactions with teachers could negatively affect students' learning outcomes. Because of the differences between men and women, looking at the demographic breakdown of the class could provide the teacher with an expectation for how accepting the class will be to Facebook use overall. However, it is important to remember that while differences exist between men and women as collectives, not all men and women are the same. Some men might feel reluctant toward Facebook interaction, while some women might be extremely open to Facebook interactions. It will be important for the teacher to know the individuals in the class to give each student the best possible educational experience. Additionally, regardless of whether they are instructing men or women through Facebook, teachers should probably explicitly state which interactive behaviors in which they will be engaging the students and the benefits of doing so—especially for those students who are hesitant about interacting with the teacher on Facebook.

While differences exist between men and women, there appear to be no differences between undergraduate and graduate students. While instructors may need to be more cautious about interacting with their female students on Facebook than their male students, it does not appear that instructors should be reticent about interacting with undergraduate students on Facebook; at least not in relation to graduate students. This runs contrary to the suggestions in the literature that promote being more cautious in interactions with undergraduate students than graduate students on Facebook. Furthermore, there was no relationship between students' ages and finding student-teacher interaction on Facebook appropriate. These results indicate that if teachers believe that interacting on Facebook would enhance the educational experience and learning outcomes of their students, they should not be concerned that students might find such interaction inappropriate on account of their being undergraduates or younger students.

It is important, also, to address the limitations of this study. First, these results are only from the student perspective. The researchers have not investigated how appropriate faculty find student-teacher interaction on Facebook, which might be different than the student results. This area would be worthy of future research. For example, where the literature recommends that student-teacher interaction on Facebook with graduate students is more appropriate than with undergraduate students,

this may be accurate from the point of view of the faculty—despite no difference from the student perspective.

A second limitation is this study sought to control interaction effects between the sexes and ages of teachers and students. All classes selected for this study were taught by male professors over the age of 40. All results should be interpreted with this in mind. It is unknown if different results would have been obtained were the classes taught by other teachers (e.g., female or younger male teachers). Future research might investigate differences in how appropriate male and female students find interacting with either male or female instructors on Facebook as well as how appropriate students find interacting with instructors of differing ages on Facebook.

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Appendix A

Student – Teacher Interaction on Facebook

Instructions: Assume that your professor has a Facebook account. Circle the answer that best represents your response to the following statements and questions; fill in the blank when appropriate.

<i>On Facebook, it is appropriate for me to ...</i>		strongly disagree	disagree	agree	strongly agree
1	send my teacher a “poke”.	SD	D	A	SA
2	comment on photos my teacher posts.	SD	D	A	SA
3	post on my teacher’s Wall.	SD	D	A	SA
4	read through the groups my teacher has joined.	SD	D	A	SA
5	view my teacher’s friends list.	SD	D	A	SA
6	send my teacher a friend invitation.	SD	D	A	SA
7	comment on my teacher’s status updates.	SD	D	A	SA
8	view photos my teacher posts.	SD	D	A	SA
9	start a chat with my teacher.	SD	D	A	SA
10	join the groups my teacher has joined.	SD	D	A	SA
11	read my teacher’s status updates.	SD	D	A	SA
12	send my teacher a message.	SD	D	A	SA
13	read through my teacher’s work info.	SD	D	A	SA
14	read through my teacher’s education info.	SD	D	A	SA
15	watch videos my teacher posts.	SD	D	A	SA
16	view photos in which my teacher has been tagged.	SD	D	A	SA
17	read my teacher’s personal info (e.g., interests, activities, favorites, etc.).	SD	D	A	SA
18	read my teacher’s basic info (e.g., political views, religious view, relationship status, etc.).	SD	D	A	SA
19	view my teacher’s profile.	SD	D	A	SA
20	comment on videos my teacher posts.	SD	D	A	SA
21	read through the posts on my teacher’s Wall.	SD	D	A	SA
22	comment on photos in which my teacher has been tagged	SD	D	A	SA
23	read my teacher’s contact information (e.g., e-mail, IM screen name, phone number, etc.)	SD	D	A	SA

(continued next page)

Appendix A *(continued)*

Student – Teacher Interaction on Facebook

<i>On Facebook, it is appropriate for my teacher to ...</i>		strongly disagree	disagree	agree	strongly agree		
24	view my friends list.	SD	D	A	SA		
25	comment on my status updates.	SD	D	A	SA		
26	join the groups I have joined.	SD	D	A	SA		
27	read through my work info.	SD	D	A	SA		
28	read my personal info (e.g., interests, activities, favorites, etc.).	SD	D	A	SA		
29	read through my education info.	SD	D	A	SA		
30	view photos in which I have been tagged.	SD	D	A	SA		
31	comment on photos in which I have been tagged.	SD	D	A	SA		
32	view photos I post.	SD	D	A	SA		
33	read my status updates.	SD	D	A	SA		
34	post on my Wall.	SD	D	A	SA		
35	start a chat with me.	SD	D	A	SA		
36	read through the groups I have joined.	SD	D	A	SA		
37	read my contact information (e-mail, IM screen name, phone number, etc.).	SD	D	A	SA		
38	watch videos I post.	SD	D	A	SA		
39	send me a message.	SD	D	A	SA		
40	send me a “poke”.	SD	D	A	SA		
41	view my profile.	SD	D	A	SA		
42	read through the posts on my Wall.	SD	D	A	SA		
43	send me a friend invitation.	SD	D	A	SA		
44	read my basic info (e.g., political views, religious view, relationship status, etc.).	SD	D	A	SA		
45	comment on photos I post.	SD	D	A	SA		
46	comment on videos I post.	SD	D	A	SA		
<i>Additional Statement</i>		strongly disagree	disagree	agree	strongly agree		
47	University faculty should be allowed on Facebook	SD	D	A	SA		
<i>About you ...</i>							
48.	What is your sex?	female	male				
49.	What is your class rank?	Freshman	Sophomore	Junior	Senior	Master's	Ph.D.
50.	How old are you?	_____ years					