

Learning through Blogging: Students' Perspectives in Collaborative Blog-Enhanced Learning Communities

Yu-Chun Kuo^{1*}, Brian R. Belland² and Yu-Tung Kuo³

¹Department of Science, Technology, Engineering, Art and Math Education, Rowan University, Glassboro, NJ, USA // ²Department of Instructional Technology and Learning Sciences, Utah State University, Logan, UT, USA

// ³Department of Computer Graphics Technology, Purdue University, West Lafayette, IN, USA //
yuchun100@gmail.com; kuo@rowan.edu // brian.belland@usu.edu // ytkuo1005@gmail.com

*Corresponding author

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ABSTRACT

This study employed a mixed method approach to investigate the relationships between learners' blogging self-efficacy, sense of community, perceived collaborative learning, and perceived learning in classroom environments. Learners' perspectives of group learning experiences in blog-enhanced settings were examined. Participants were minority adult students enrolled in two courses offered at a university in the southern United States. Results indicated that (a) sense of community and perceived collaborative learning significantly contributed to perceived learning through blogging; (b) blogging self-efficacy was not a good predictor of perceived learning but was related to prior experiences of using blogs; (c) most students displayed positive attitudes toward the use of blogs and group learning experiences that involved collaborative process as well as the development of knowledge and skills; and (d) individual dispositions had a potential influence on collaboration. This study adds to the limited research on the use of blogging and collaborative work among minority students in continuing education. Results are discussed in light of the literature and suggestions for future research are provided.

Keywords

Collaborative learning, Sense of community, Blogging self-efficacy, Mixed methods, Constructivism

Introduction

Blogs have been increasingly utilized in higher education to facilitate student learning (Halic, Lee, Paulus, & Spence, 2010; Shana & Abulibdehb, 2015; Top, 2012). They allow users with no advanced programming skills to create an online space through posting, editing, and publishing articles composed of text, images, audio, video, and hyperlinks (Papastergiou, Gerodimos, & Antoniou, 2011). In blog-supported environments, learners learn to and begin to appreciate information sharing, idea exchange, and collaboration, which in turn contributes to student learning or professional development (Top, 2012; Wassell & Crouch, 2008). Research has indicated that blogs can serve as effective teaching and learning tools to (a) support students' active participation through collaboration in a class (Kiliç, & Gökdaş, 2014; Top, 2012), (b) enhance peer support and interaction (Chang & Chang, 2014; Laal & Laal, 2012), (c) increase students' motivation to learn the subject content (Pursel & Xie, 2014; Shana & Abulibdehb, 2015), and (d) develop students' critical thinking and reflective skills (Li, Bado, Smith, & Moore, 2013; Ellison & Wu, 2008; Xie, Ke, & Sharma, 2008).

The majority of studies on blogging in education have been completed in higher education (undergraduate- and graduate-level) and K-12 settings across various disciplines (Shana & Abulibdehb, 2015; Top, 2012; Xie, Ke, & Sharma, 2008), and limited focus has been placed upon non-traditional adult students in continuing education (Park, Helo, & Lee, 2011). Blogs may help create a meaningful learning environment for adult students, and to some degree, blogs may also cater to adult students' learning preferences, including providing for self-direction, practical experiences, and student-centered learning (Merriam, Caffarella, & Baumgartner, 2007). Blogs can facilitate positive learning experiences among adult learners through reflection-oriented learning processes (Park, Helo, & Lee, 2011). There is little research focusing on minority students' perceptions of learning experiences with blogs. This study involves African American students in continuing education. African-American students are considered as high context learners who have a preference to work in groups rather than work independently or individually (White, 1992). Participating in a learning community appears to increase the chance of academic success among African-American students (Duncan & Barber-Freeman, 2008; Gallien & Peterson, 2004). It would be valuable to further explore African-American adult students' learning experiences with blogs.

In addition, although previous research indicated that the use of blogs enhances students' collaborative learning experiences and sense of community, little research describes effective strategies to integrate blogs into instruction so as to enhance knowledge acquisition, collaboration and communication skills, belongingness, and affective outcomes in classroom settings (Top, 2012). Presumably, one's confidence in executing blogging-relevant tasks is important and relevant to an individual's learning experience with blogs. However, blogging self-efficacy was not included in any previous research studies as a predictor of students' perceived learning in blog-enhanced settings. Furthermore, no previous study has investigated blogging self-efficacy, collaborative learning, and sense of community together, as well as the effect of these three factors on students' perceived learning of blogging among African American adult students. Therefore, the purpose of this study was to investigate the relationships between blogging self-efficacy, sense of community, collaborative learning, and perceived learning in blog-enhanced learning settings.

Theoretical framework

According to the social constructivism embodied by cultural-historical activity theory, knowledge is constructed through social interactions, including conversation, discussion, and negotiation processes (Leont'ev, 1974; Luria, 1976; Rondon-Pari, 2011; Vygotsky, 1978). The zone of proximal development (ZPD), intersubjectivity, mediation, and enculturation are four concepts underlying the process of learning according to social constructivist perspectives (Engeström, 2001; Woo & Reeves, 2007). ZPD is closely tied to assessment, in that it posits that the focus of assessment should be on students' problem-solving abilities when collaborating with more capable peers or adults, rather than on students' independent problem solving abilities (Vygotsky, 1978; Wertsch, 1984). The ZPD is then the distance between an individual's problem-solving abilities when assessed in these two different ways. Intersubjectivity refers to a shared understanding of the goals of instruction (Verenikina, 2008; Woo & Reeves, 2007). According to enculturation, students learn knowledge, skills, and values through authentic engagement in a target culture (Kottak, 2007). The use of mediating artifacts (e.g., tools, signs, symbols, language) is relevant to the interaction of subjects (e.g., actors) and objects (e.g., goals; Engeström, 2001; Hogan & Tudge, 1999). That is, individuals' learning is shaped through tool mediation and changes of cultures over time.

Learning happens through meaning making that involves the process of sharing various perspectives and experiences in communities of practice (Vygotsky, 1978). There are different levels of collaboration involved during meaning negotiation where learners interact with peers to construct information together in social and cultural contexts (Cuhadar & Kuzu, 2010; Sivan, 1986). Collaborative groupwork (e.g., group discussions, team projects) enhances meaning construction and negotiations from multiple perspectives (Smith & Ragan, 2005; Woo & Reeves, 2007; Zhu, Valcke & Schellens, 2009). Using technological tools, such as blogs, in constructivist learning environments provides learners the means/tools to cooperate and interact with peers from different cultures, seek and share information, and solve problems and make decisions (Cuhadar & Kuzu, 2010).

Collaborative learning

In collaborative learning, shared learning experiences allow learners to engage in discussion, converse with other learners, and present or defend ideas, which enhances not only interaction among learners, but also critical thinking and problem-solving skills (Armstrong & Hyslop-Margison, 2006; Kuo & Belland, 2016; Kuo, Walker, Belland & Schroder, 2013; Gokhale, 1995; Smith & MacGregor, 1992). At its core, collaborative learning is learner-centered. But it additionally involves multiple students working together to accomplish common goals. Collaboration can be facilitated with various forms of communication in face-to-face or computer-supported settings (Laal & Laal, 2012).

Blogs support collaborative learning by enhancing knowledge acquisition, knowledge sharing, and reflective processes (Wang, 2010; Yang & Chang, 2012). For example, Wang (2010) investigated students' perceptions of utilizing blogs as a platform for content review, data collection, and idea sharing in collaborative groups. Students perceived that blogs (a) are a useful tool to reflect and interact with classmates, and (b) enlarged the resources of learning support. Yang and Chang (2012) examined the influence of integrating blogs as supplementary tools on student learning in a traditional instructor-led class. Blogging was found to be a medium that enhances asynchronous peer interaction, reflection, and positive attitudes toward academic achievement in collaborative activities.

Sense of community

Sense of community refers to “a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together” (McMillan & Chavis, 1986, p. 9). Sense of community can be determined through shared goals and responsibility, student–instructor interaction, learner-learner interaction, value and interest, peer respect, and emotional connection (Cho, Bang, Mathew, Bridges, & Watson, 2010; McMillan & Chavis, 1986). Students’ sense of community is positively related to learning outcomes, including learning experiences, achievement, and student effort (Sadara, Robertson, Song, & Midon, 2009; Sánchez, Colón & Esparza, 2005). Furthermore, from a self-determination theory perspective, sense of community is similar to the concept of belongingness, which is one of the three motivational needs (i.e., competence, relatedness, and autonomy; Ryan & Deci, 2000).

Blogs can enhance sense of community by increasing participation, engagement, and interaction in classroom or online learning (Cuhadar & Kuzu, 2010; Yang, 2009). Learners are more engaged when in blog-enhanced settings than when in other web-based environments (Yang, 2009). Appropriate use of blogs with instructional strategies that align with course content contributes to feelings of a learning community. Through peer dialogue, learners develop reflective thinking and self-examination skills that result in personal growth and knowledge acquisition (Cuhadar & Kuzu, 2010; Xie, Ke, & Sharma, 2010). Blogs can enhance interpersonal communication skills and group interactions, especially when students are asked to provide feedback or comments (Blau, Mor, & Neuthal, 2009).

Blogging self-efficacy

Blogging self-efficacy refers to confidence in performing multimedia tasks in blogging, including capturing multimedia, multimedia processing, and content transfer to a blog. Research has shown that blogs can be a useful tool for formal and informal learning in various disciplines (Park, Heo, & Lee, 2011). Students’ confidence in using blogs may influence their learning experience in a learning environment where blogs are required (Top, 2012). Blogging self-efficacy is associated with one’s self-efficacy in using information and communication technologies (Papastergiou, Gerodimos, & Antoniou, 2011). Research on the impact of blogging self-efficacy on perceived learning is scarce. Hence, we assumed that blogging self-efficacy may influence perceived learning in this study.

Perceived learning

Much research on the effectiveness of blogging for instruction focuses on its impact on objective measures of learning (e.g., grades, quality ratings of student-produced artifacts; Papastergiou et al., 2011; Shobieri, Rashidi, Meiboudi, & Saradipour, 2014; Xie, Ke & Sharma, 2008; Xie, Ke & Sharma, 2010). While such research is important, it is also important to measure students’ perceptions of learning. First, research among college students shows that perceived usefulness of learned material is highly correlated with perceived learning (Roszkowski & Soven, 2010). When students perceive that they learned a lot, they may also be more likely to perceive that the content that they learned was useful, and in turn to apply the content when applicable. Second, perceived usefulness is critical to motivation in that it informs the value that students assign to the content to be learned (Brophy, 1999; Wigfield & Eccles, 2000). Together with expectancy for success, perceived value drives student motivation (Wigfield & Eccles, 2000), and perceived value can be particularly important in driving lifelong learning (McCombs, 1991).

Research questions

- What are learners’ blogging self-efficacy, sense of community, perceived collaborative learning, and perceived learning?
- What is the relationship between learners’ blogging self-efficacy, sense of community, perceived collaborative learning, and perceived learning?
- Do learners’ blogging self-efficacy, sense of community, and perceived collaborative learning predict perceived learning?
- Do learners who were aware of blogs before attending the class show better blogging self-efficacy and perceived learning than those who were not?
- What are learners’ perspectives of group learning experiences through the use of blogs?

Method

Sample

Participants were African American undergraduate students enrolled in two instructional design courses ($N = 27$ and 33, respectively) from a southern university in the United States (See Table 1). The courses were taught in the fall and spring semester, respectively, in the same academic year. The students were non-traditional adults who often have a full-time job and take evening or online courses for degree-seeking purposes in continuing education. The response rate was 89.5%. Most students (61.7%) were not familiar with blogs prior to starting the class. Among those who were familiar with blogs before the class, 52.2% had used blogs.

Table 1. Background information of participants

	<i>N</i>	Percentage
Gender		
Male	10	16.7%
Female	50	83.3%
Age		
18-25	15	25%
26-35	8	13.3%
36-45	18	30%
46-55	11	18.3%
Above 56	8	13.3%
Ethnicity		
African-American	60	100%
Caucasian	0	0%
Asian	0	0%
Knew about blogs before taking the course		
Yes	23	38.3%
No	37	61.7%
Used blogs before taking the course (Only for those who knew about blogs)		
Yes	12	52.2%
No	11	47.8%

Data collection

Printed surveys were distributed at the end of the group project. To increase response rate, participants were awarded extra points. Students in the spring course were required to respond to one open-ended question that asked students about their perceived learning experiences of groupwork through blogging.

The survey included five subscales covering learner background, blogging self-efficacy, sense of community, perception of collaborative learning, and perceived learning (see Table 2). The latter four subscales were used previously and high reliability values were found, except for blogging self-efficacy whose original reliability was not reported by the developers (see Table 2). The validity of scores resulting from administration of these four scales was examined by the original developers using factor analysis.

Table 2. Instruments

Scales	Scale type	Number of items	Original reliability (Cronbach's alpha)	Reliability in this study (Cronbach's alpha)
Blogging self-efficacy	5-point Likert	13	NA	0.94
Sense of community	5-point Likert	6	0.87	0.76
Perceived collaborative learning	5-point Likert	8	0.72	0.74
Perceived learning	5-point Likert	7	0.87	0.92

Note. NA refers to "not available" as the reliability information of blogging self-efficacy was not reported in the original study.

The blogging self-efficacy scale measured students' perceptions of their ability to perform tasks relevant to multimedia blogging, including multimedia capturing, processing, and blogging (Papastergiou, Gerodimos, & Antoniou, 2011). The collaborative learning scale measured learners' preferences of group versus individual work, preferences of online versus face-to-face interaction, perceptions of collaboration, and overall satisfaction

with collaborative learning (So & Brush, 2008). The sense of community and perceived learning scales contained 6 and 7 items, respectively (Halic, Lee, Paulus, & Spence, 2010). The sense of community scale measured students' perceptions of the extent to which using blogs facilitated community building. The perceived learning scale measured the extent to which students perceived that using blogs enhanced their learning. Table 3 provides a list of items in each scale.

Table 3. Items of each scale

Scales	Items
Blogging self-efficacy	<ol style="list-style-type: none"> 1. Transferring photos from a mobile phone to a computer 2. Using a mobile phone to shoot video 3. Using a digital camcorder to shoot video 4. Using a mobile phone to take photos 5. Transferring video from a mobile phone to a computer 6. Transferring photos from a digital camera to a computer 7. Using a digital camera to take photos 8. Transferring video from a digital camcorder to a computer 9. Using a blog to read multimedia content 10. Using a blog to comment multimedia content 11. Using a blog to publish multimedia content 12. Using video processing software 13. Using image processing software
Collaborative learning	<ol style="list-style-type: none"> 1. Collaborative learning experience in the computer-mediated communication environment is better than in a face-to-face learning environment. 2. I felt part of a learning community in my group. 3. I actively exchanged my ideas with group members. 4. I was able to develop new skills and knowledge from other members in my group. 5. I was able to develop problem solving skills through peer collaboration. 6. Collaborative learning in my group was effective. 7. Collaborative learning in my group was time-consuming. 8. Overall, I am satisfied with my collaborative learning experience in this course.
Sense of community	<ol style="list-style-type: none"> 1. I visit our nutrition blog more than required by my instructor. 2. The blog helps me feel connected to other students in this course. 3. Due to the class blog, I feel that I am an important part of our classroom community. 4. I have been stimulated to do additional readings or research on topics discussed on the blog. 5. In comparison to my other classes, the amount of my interaction with other students in this class has increased due to the blog. 6. In comparison to my other classes, the quality of interaction with other students in this class has increased due to the blog.
Perceived learning	<ol style="list-style-type: none"> 1. The blog discussions help me to share my knowledge and experience with my peers. 2. I believe that incorporating blogs with teaching can enhance my learning experience in general. 3. Other students' comments on my blog posts are important. 4. Blog discussions help me understand other points of view. 5. Blog discussions have made me think about nutrition concepts outside of this class. 6. My point of view has been acknowledged by my peers and/or discussion leader in this course. 7. Overall using the blog has helped me learn.

Procedure

The group project was designed to help students learn in a collaborative learning environment that incorporated blogging. We used the blog tool provided within Blackboard. The reasons to use blogs included ease of use and features of blogs that offer a collaborative learning space for each group. The groupwork was student-centered and project-based learning approach was undertaken in which the instructor served as a facilitator throughout the

process. The group project lasted one month. First, the instructor explained the group project process. Before students started groupwork, a short training session provided students with an overview of blog features. This was designed to decrease students' fears of using blogs, especially for those who did not have any experiences blogging. Each group was asked to choose their own topic and post information relevant to the selected topic. In the last week of groupwork, students needed to review other groups' blogs and provide comments. In addition, students were invited to participate in the survey after they completed the groupwork. The instructor provided guidance and directions to groups who encountered problems (e.g., collaboration procedure and topic selection) during the group project.

Data analysis

Data were analyzed using quantitative and qualitative methods (See Table 4). Quantitative approaches included descriptive analysis, correlation, regression analyses, and *t*-tests. Qualitative approaches included content analysis.

Table 4. Research questions and corresponding analyses

Research questions	Analyses
1. What are learners' blogging self-efficacy, sense of community, perceived collaborative learning, and perceived learning?	Descriptive analysis
2. What is the relationship between learners' blogging self-efficacy, sense of community, perceived collaborative learning, and perceived learning?	Correlation analysis
3. Do learners' blogging self-efficacy, sense of community, and perceived collaborative learning predict perceived learning?	Regression analysis
4. Do learners who were aware of blogs before attending the class show better blogging self-efficacy and perceived learning than those who were not?	T-test analysis
5. What are learners' perspectives of group learning experiences through the use of blogs?	Content analysis

Results

Descriptive information

Students possessed medium ($M = 3.83$, $SD = 0.88$) blogging self-efficacy (See Table 5). The average score for sense of community was 3.94. Students perceived moderately high levels of collaborative learning with an average score of 4.21. Students perceived that blogging helped them learn, with a slightly high mean on perceived learning ($M = 4.31$, $SD = 0.50$).

Table 5. Descriptive information for each scale

Scales	Range	Midpoint	<i>M</i>	<i>SD</i>
Blogging self-efficacy	1-5	3	3.83	0.88
Sense of community	1-5	3	3.94	0.59
Perceived collaborative learning	1-5	3	4.21	0.43
Perceived learning	1-5	3	4.31	0.50

Correlation and regression analyses

Self-efficacy ($r = .340$, $p < .01$), sense of community ($r = .641$, $p < .01$), and perceived collaborative learning ($r = .728$, $p < .01$) were significantly correlated with learners' perceived learning (See Table 6). Blogging self-efficacy was significantly correlated with sense of community ($r = .575$, $p < .01$) and perceived collaborative learning ($r = .405$, $p < .01$).

The multiple regression model (see Table 7) was significant, $F(3, 56) = 30.34$, $p < .001$, explaining 61.9 % of the variance in perceived learning. Sense of community ($t(56) = 3.564$, $p < .05$) and perceived collaborative learning ($t(56) = 5.509$, $p < .05$) were significant predictors of perceived learning, with perceived collaborative learning the strongest predictor. Blogging self-efficacy did not significantly contribute to perceived learning, $t(56) = -1.104$, $p > .05$.

Table 6. Correlations among variables

	Blogging self- efficacy	Sense of community	Perceived collaborative learning	Perceived learning
Blogging self- efficacy	-	.575**	.405**	.340**
Sense of community		-	.557**	.641**
Perceived collaborative learning			-	.728**
Perceived learning				-

Note. ** $p < .01$.

Table 7. Multiple regression model: Perceived learning explained by three predictor variables

Variables	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>p</i>
Blogging self- efficacy	-.063	.057	-.112	-1.104	.274
Sense of community	.338	.095	.399	3.564	.001**
Perceived collaborative learning	.631	.114	.551	5.509	.000***

Note. ** $p < .01$; *** $p < .001$.

T-test analysis

Students who were familiar with blogs before the class started had higher blogging self-efficacy than those who were not, $t(58) = 2.096, p < .05, ES = 0.55$. There were no significant differences in perceived learning between students who were familiar with blogs and those who were not (see Table 8).

Table 8. T-test analysis for blogging self-efficacy and perceived learning

	Knowing blogs		Not knowing blogs		<i>t</i> (58)	<i>p</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Blogging self- efficacy	4.13	0.93	3.65	0.81	2.096	.040*	0.55
Perceived learning	4.41	0.45	4.24	0.52	1.241	.220	0.35

Note. * $p < .05$.

Content analysis

Student responses to their group learning experiences were visualized by using the word cloud application (see Figure 1). Descriptors (see Table 9) coded by the researchers were entered to obtain the visualized image. More frequently mentioned words or descriptors were shown in larger font size and brighter color.



Figure 1. Descriptions of learners' perspectives of group learning experiences

Three themes emerged through coding: individual perceptions of groupwork, learning process, and collaboration process (see Table 9). Most students described group projects as positive, with very few students who disliked

the group learning approach. Many students enjoyed groupwork and found the collaborative learning process enjoyable, effective, educational, and interesting. Some of them showed a high level of motivation to learn through collaboration.

The learning process covered the development of knowledge (e.g., content knowledge, thinking) and skills (i.e., organization skills, collaboration skills). It appears that through groupwork, more knowledge was learned than skills. Knowledge was developed through self-reflection that led to personal growth and changes of thinking. Real-life experiences helped students connect theory to practice and further develop their own understanding of important topics or issues.

Modes of collaboration reported by students included interaction, information sharing, and idea negotiation to achieve consensus. Idea exchange through discussion and communication helped eliminate disagreements among groupmates or overcome the challenges that took place during the collaborative groupwork. Feedback or resources shared from others in the same group made groupwork easier and also promoted idea formation through brainstorming.

Some students indicated that groupwork requires respect, patience, support, and encouragement from their groupmates. Feeling part of a team in which each group member's ideas and contribution were valued was critical for group collaboration. A certain level of attention from groupmates was needed for some students, which helped them become more engaged in the collaboration process. Sense of responsibility and reliability was integral to keeping the whole interactive process smooth.

Table 9. Major themes summarized from responses to the open question

Themes	Categories	Descriptors	Selected examples
Individual perceptions of groupwork (28)	Positive (25)	<ul style="list-style-type: none"> • enjoying • effective • exciting • educational • fun • great • highly-motivated • like • interesting • success 	“Our group activity has been an exciting adventure for me. I enjoyed working with each of my group members.”
	Negative (3)	<ul style="list-style-type: none"> • dislike • ineffective 	“Its not effective to me to work in a group, I work better alone because I’m on my own time and I don’t have to wait for anybody. I work a lot so in my free time I like to work on my project(s) without trying to find out with anybody else have the same free time as I do.”
Learning process (24)	Knowledge (21)	<ul style="list-style-type: none"> • knowledge acquisition • personal growth • self-reflection • thinking • real-life experiences • social-learning 	“I gained a [good] deal of knowledge from each of these ladies. I am so happy that I was able to “gleam” knowledge and information from them.”
	Skills (3)	<ul style="list-style-type: none"> • organization skills • collaboration-skills 	<p>“I learned that sometimes you have to listen to other opinions in order to get the work done.”</p> <p>“I really enjoyed my group because we bonded and learned to work together. I also learned that when working with a group, people will have many different ideas.”</p>
Collaboration process (82)	Group-oriented behaviors (64)	<ul style="list-style-type: none"> • agreements • assistance • collaborative • communication • decision-making 	“I learned that everyone will not agree on certain things. This group project has taught me that everyone has to have an opportunity to share their thoughts and ideas. While working in my group everyone came together

	<ul style="list-style-type: none"> • disagreements • discussions • feedback • idea-negotiation • idea-exchange • idea-sharing • information-seeking • information-sharing • interaction • participation • resources • various-opinions • social-network • challenges 	and came to an understanding on the proper way to handle the assignment.”
Individual disposition toward team members (18)	<ul style="list-style-type: none"> • encouraging • personalities • reliable • patient • rewarding • responsibility • respect • supportive • team-feeling • values • contribution • attention 	“When participating in a group you should show acceptance to different personalities and be sensitive to people needs, feelings and positions.”

Note. The number within the parenthesis refers to the frequency of used descriptors.

Discussion

Blogging self-efficacy is positively related to perceived learning but not a significant predictor of perceived learning

Blogging self-efficacy was found to be positively correlated with perceived learning at a significant level. However, it did not significantly predict perceived learning. This may be because students had similar average blogging self-efficacy scores, which resulted in small variances among their perceived learning scores. Students may have underestimated the value of blogging and their motivation toward learning thus suffered (Wigfield & Eccles, 2000). Although a few previous studies have found blogging activities to have a positive impact on students' grades (Xie, Ke, & Sharma, 2008; Xie, Ke, & Sharma, 2010), this study did not investigate the relationship between blogging self-efficacy and learning performance (e.g., grades); rather, it measured the association between students' self-report of perceived learning (students' self-rating of their perceived learning experiences) and blogging self-efficacy. Although suggested by the research of Top (2012), which involved pre-service teachers in ICT courses, such a relationship was not examined in any prior studies. Our study found that blogging self-efficacy is related to but not a critical predictor of perceived learning among minority students.

Taking a further look at the blogging self-efficacy scale, most students appeared to have good self-efficacy in using phones or digital cameras to take photos, shoot video, or transfer photos to a computer, but lower self-efficacy in terms of transferring video between different devices, and using a blog to read, comment or publish multimedia content. Students felt least confident using video- or image-processing software in blog activities. In this study, including images or videos was encouraged but not mandatory. Thus, it might be unlikely to find a significant influence of blogging self-efficacy on students' perceived learning that assessed students learning experience using blogs to discuss, share knowledge, and learn.

Sense of community and perceived collaborative learning are significant indicators of perceived learning

Aligned with previous research, sense of community and perceived collaborative learning were critical to perceived learning (Halic et al., 2010; Kiliç, & Gökdaş, 2014; Top, 2012; Yang, 2009). They were not only significantly correlated with, but also significant predictors of, perceived learning. Previous studies did not involve African-American students, and this study provides evidence of such important relationships among minority populations. Using blogs helped students develop the feeling of belonging to a learning community, which is consistent with prior research (Muncy, 2014; Top, 2012; Top, Yukselturk, & Inan, 2010; Wang, 2010; Yang & Chang, 2012). This makes sense in part because collaborative environments allow students to share information, exchange ideas, provide feedback, interact with others, and develop reflective thinking. Consistent with social constructivism, many educators have found blogs to be useful educational tools that provide social interactive environments through which students' knowledge is created by conversing or interacting with others socially (Driscoll, 2005; Top, 2012; Top, Yukselturk, & Inan, 2010). Such tools can support a variety of learning activities, especially for groupwork (Duarte, 2015).

Blogs are transformational technology tools that can potentially promote sense of community and perceived collaborative learning, which in turn, can enhance students' perceived learning experiences in blog-supported learning environments (Top, 2012). According to the finding of this study, the higher the levels of sense of community and perceived collaboration, the better the perceived learning experiences for undergraduate minority students are. Students in this study who felt (a) more connected to their groupmates or (b) an important part of their group community were more likely to perceive better learning experiences, which aligns with previous findings (Halic et al., 2010; Top et al., 2010). Similarly, those who had more interaction or communication with groupmates were more likely to develop a better understanding of newly learned knowledge or skills (Papastergiou et al., 2011; So & Brush, 2008).

Prior knowledge of blogs may influence one's blogging self-efficacy

Students who were familiar with blogs prior to the class had significantly higher blogging self-efficacy than those who reported no prior knowledge about blogs. This finding makes sense because the former students might have previously used certain blog features or creating their own blogs, which would possibly result in higher blogging self-efficacy than those who had not even known or utilized blogs. It is likely that blogging self-efficacy could be increased over time through relevant activities or other interventions that involve the use of blogs (Papastergiou et al., 2011). Previous researchers have not investigated the impact of prior blogging knowledge on blogging self-efficacy, and the significant finding of our study among minority students may be applicable to future blogging research.

Group collaborative learning contributes to the development of knowledge and skills

Most students perceived their groupwork experience as positive, which aligns with previous research. The group collaborative learning process with the use of blogs helped students gain both knowledge and skills through communication and idea sharing, which is aligned with the tenet of cultural-historical activity theory that knowledge is constructed through social interactions (Luria, 1976; Vygotsky, 1978). In terms of gaining knowledge, students perceived having learned the content, developed their ways of thinking through discussion, and gained real-life experiences.

Blogs in this study served as a mediating tool that provides students with collaborative learning environments and helps to shape their understanding of knowledge and acquisition of skills through meaningful communication or interaction over time, which reflects the sociocultural-historical perspective that highlights the importance of the interaction between tools, subjects, and objects (Hogan & Tudge, 1999; Vygotsky, 1978). Consistent with findings from previous studies, groupwork with blogging contributed to better understanding of course content (Halic et al., 2010; Li, Bado, Smith, & Moore, 2013) and the development of higher level thinking skills, such as theory-practical linkages, critical thinking and reflection (Deng & Yuen, 2011; Osman & Koh, 2013; Yang, 2009). Quality of peer comments plays an important role in critical or reflective thinking (Xie et al., 2008). Poor quality of peer feedback would have a negative effect on one's reflective thinking. According to Osman and Koh (2013), collaborative blogging helped students to link theory to their professional experiences and their observations in the work place.

In terms of learned skills, students in this study learned how to manage tasks in an organized way and developed good collaboration skills. Such skills would be valuable for their current or future career. Prior research appeared to address more development of knowledge than that of skills in blogging groupwork. The two skills (i.e., collaborative and organizational skills) identified in this study were reasonable as group learning through blogging has shifted from instructor-centered to learner-centered and imposed greater responsibilities on students by requiring better management skills to achieve success (Garcia, Elbeltagi, Brown, & Dungay, 2015).

Individual dispositions are potential factors for collaboration processes

The majority of students had positive reactions to collaborative groupwork, which is consistent with the results of previous research that indicates African-American students prefer to work collaboratively and learn better in such environments (Duncan & Barber-Freeman, 2008; Gallien & Peterson, 2004). However, none of these studies included the use of blogs, and no prior blogging studies have investigated African-American students' learning experiences in blogging.

Individuals' dispositions toward other members within the same group may influence the effectiveness of the collaboration process, as found in this study. This finding is valuable as no prior blogging research has focused on studying how individuals' feelings, attitudes, or characteristics would possibly affect group collaboration in learning settings. Guadagno, Okdie, and Eno (2008) researched students from a university and found that those who had high levels of openness as well as neuroticism were most likely to be bloggers. People who maintained personal blogs were most likely to use other online sources or platforms for social interaction. Similarly, extroverted people are more likely to have more interactions with others than introverted people in online learning (Kuo, Walker, Belland, Schroder & Kuo, 2014). The important factors found in this study, such as patience, reliability, responsibility, respect, support, etc., might be associated with the characteristics (e.g., extroversion, high openness, high neuroticism) identified among most bloggers.

Conclusion

Overall, the minority students in this study were positive about the use of blogs in groupwork, and most of them preferred working in a learning community. Sense of community and collaborative learning significantly predicted perceived learning, with collaborative learning being the strongest predictor. This provides evidence of the usefulness of using blogs in enhancing minority students' collaborative learning experiences and sense of belonging in a group. Blogging self-efficacy, a predictor suggested to be included but not investigated by previous researchers, was not found to significantly predict perceived learning, although previous knowledge of blogging was positively related to blogging self-efficacy at a significant level. Content analysis showed that most students liked groupwork and that their knowledge and skills (i.e., management skills, organization skills, and collaboration skills) were developed throughout the group learning process. Group-oriented behaviors (e.g., communication, information seeking) were largely identified through collaboration processes. Individual positions, including peer support from and emotional bonds among groupmates, were particularly important during collaboration.

This study not only confirms the preference of collaborative group work among minority students as well as the importance of collaborative learning and sense of community on perceived learning in blog-enhanced settings, but also adds to the limited research about the influence of blogging self-efficacy on perceived learning, as well as the effectiveness of web 2.0 tools to enhance knowledge and skill acquisition, collaboration, and affective learning outcomes in the classroom among non-traditional minority students in continuing education. Implications suggest that course instructors should (a) identify students who are not familiar with blogs and provide them with additional training before groupwork; (b) design small icebreaker activities to help members in the same group know each other and to develop sense of learning community; (c) apply proper pedagogies or strategies, such as case-based, project- or problem-based learning, to enhance student collaboration in an effective way; and (d) include learners' real-life experiences in groupwork to facilitate collaborative learning. In the future, researchers are encouraged to (a) replicate this study among other students from minority backgrounds; (b) examine the relationship between blogging self-efficacy and perceived learning with different student populations; (c) further study the association of levels of collaboration and sense of community with learning performance, and (d) investigate how individual attributes, characteristics, or emotional variables have an influence on the collaborative process.

In terms of limitations of this study, the findings may not be generalized to other ethnic populations or traditional on-campus students. This study involved non-traditional adult students who were more mature than traditional on-campus students. The sample was drawn from two classes, which may not well present all African American students. In addition, we adopted the original instruments developed by previous researchers and did not further examine the validity of these scales with our sample due to the small sample size (Arrindell & van der Ende, 1985; Myers, Ahn, & Jin, 2011). Future studies are encouraged to further validate these scales with different populations or contexts, and examine their reliability to ensure the consistency of items.

References

- Armstrong, J., & Hyslop-Margison, E. (2006). Collaborative learning and dialogue: Democratic learning in adult education. *New Horizons in Adult Education and Human Resource Development*, 20(4), 6-15. doi:10.1002/nha3.10265
- Arrindell, W. A., & van der Ende, J. (1985). An Empirical test of the utility of the observations-to-variables ratio in factor and components analysis. *Applied Psychological Measurement*, 9, 165 - 178. doi:10.1177/014662168500900205
- Blau, I., Mor, N., & Neuthal, T. (2009). Open the windows of communication: Promoting interpersonal and group interactions using blogs in higher education. *Interdisciplinary Journal of E-Learning and Learning Objects*, 5, 233-246.
- Brophy, J. (1999). Toward a model of the value aspects of motivation in education: Developing appreciation for particular learning domains and activities. *Educational Psychologist*, 34(2), 75-85.
- Chang, Y. J., & Chang, Y. S. (2014). Assessing peer support and usability of blogging in hybrid learning environments. *Interactive Learning Environments*, 22(1), 3-17. doi:10.1080/10494820.2011.619889
- Cho, Y., Bang, H., Mathew, S., Bridges, S., & Watson, A. (2010, April/May). *An integrative approach for conceptualizing "sense of classroom community" among college students*. Paper presented at the annual meeting of the American Educational Research Association, Denver, CO.
- Cuhadar, C., & Kuzu, A. (2010). Improving interaction through blogs in a constructivist learning environment. *Turkish Online Journal of Distance Education*, 11(1), 134-161.
- Deng, L., & Yuen, H. K. (2011). Toward a framework for educational affordances of blogs. *Computers & Education*, 56(2), 441-451. doi:10.1016/j.compedu.2010.09.005
- Driscoll, M. P. (2005). *Psychology of learning for instruction*. Boston, MA: Pearson.
- Duarte, P. (2015). The Use of a group blog to actively support learning activities. *Active Learning in Higher Education*, 16(2), 103-117. doi:10.1177/1469787415574051
- Duncan, B. B., & Barber-Freeman, P. T. (2008). A Model for establishing learning communities at a HBCU in graduate classes. *Journal of Negro Education*, 77(3), 241-249.
- Engeström, Y. (2001). Expansive learning at work: Toward an activity theoretical reconceptualization. *Journal of Education and Work*, 14(1), 133-156. doi:10.1080/13639080020028747
- Ellison, N. B., & Wu, Y. (2008). Blogging in the classroom: A Preliminary exploration of student attitudes and impact on comprehension. *Journal of Educational Multimedia and Hypermedia*, 17(1), 99-122.
- Gallien, L. B., Jr., & Peterson, M. S. (2004). *Instructing and mentoring the African American college student: Strategies for success in higher education*. Boston, MA: Allyn and Bacon.
- Garcia, E., Elbeltagi, I., Brown, M., & Dungay, K. (2015). The Implications of a connectivist learning blog model and the changing role of teaching and learning. *British Journal of Educational Technology*, 46(4), 877-894. doi:10.1111/bjet.12184
- Gokhale, A. A. (1995). Collaborative learning enhances critical thinking. *Journal of Technology Education*, 7(1). doi:10.21061/jte.v7i1.a.2
- Guadagno, R. E., Okdie, B. M., & Eno, C. (2008). Who blogs? Personality predictors of blogging. *Computers in Human Behavior*, 24, 1993-2004. doi:10.1016/j.chb.2007.09.001
- Halic, O., Lee, D., Paulus, T., & Spence, M. (2010). To Blog or not to blog: Student perceptions of blog effectiveness for learning in a college-level course. *The Internet and Higher Education*, 13(4), 206-213. doi:10.1016/j.iheduc.2010.04.001
- Hogan, D. M., & Tudge, J. R. (1999). Implications of Vygotsky's theory for peer learning. In M. O'Donnell & A. King (Eds.), *Cognitive perspectives on peer learning* (pp. 39-65). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Kiliç, E., & Gökdaş, I. (2014). Learning through blogging: Use of blogs to enhance the perceived learning of pre-service ICT teachers. *Educational Sciences: Theory & Practice*, 14(3), 1169-1177. doi:10.12738/estp.2014.3.1987

- Kottak, C. P. (2007). *Window on humanity: A Concise introduction to anthropology*. Boston, MA: McGraw- Hill Higher Education.
- Kuo, Y. C., & Belland, B. R. (2016). An Exploratory study of adult learners' perceptions of online learning: Minority students in continuing education. *Educational Technology Research and Development*, 64(4), 661-680. doi:10.1007/s11423-016-9442-9
- Kuo, Y. C., Walker, A., Belland, B. R., & Schroder, K. E. E. (2013). A Predictive study of student satisfaction in online education programs. *The International Review of Research in Open and Distance Learning*, 14(1), 16-39. doi:10.19173/irrodl.v14i1.1338
- Kuo, Y. C., Walker, A., Belland, B. R., Schroder, K. E. E., & Kuo, Y. T. (2014). A Case study of integrating Interwise: Interaction, Internet self-efficacy, and satisfaction in synchronous online learning environments. *The International Review of Research in Open and Distance Learning*, 15(1), 161-181. doi:10.19173/irrodl.v15i1.1664
- Laal, M., & Laal, M. (2012). Collaborative learning: What is it? *Procedia - Social and Behavioral Sciences*, 31, 491-495.
- Leont'ev, A. N. (1974). The Problem of activity in psychology. *Soviet Psychology*, 13(2), 4-33. doi:10.2753/RPO1061-040513024
- Li, K., Bado, N., Smith, J., & Moore, D. (2013). Blogging for teaching and learning: An Examination of experience, attitudes, and levels of thinking. *Contemporary Educational Technology*, 4(3), 172-186.
- Luria, A. R. (1976). *Cognitive development: Its cultural and social foundations*. Cambridge, MA: Harvard University Press.
- McCombs, B. L. (1991). Motivation and lifelong learning. *Educational Psychologist*, 26, 117-127. doi:10.1207/s15326985ep2602_4
- Merriam, S. B., Caffarella, R. S., & Baumgartner, L. M. (2007). *Learning in adulthood: A Comprehensive guide*. San Francisco, CA, USA: Jossey-Bass.
- McMillan, D. W., & Chavis, D. M. (1986). Sense of community: A Definition and theory. *Journal of Community Psychology*, 14, 6-23.
- Muncy, J. A. (2014). Blogging for reflection: The Use of online journals to engage students in reflective learning. *Marketing Education Review*, 24(2), 101-113. doi:10.2753/MER1052-8008240202
- Myers, N. D., Ahn, S., & Jin, Y. (2011). Sample size and power estimates for a confirmatory factor analytic model in exercise and sport: A Monte Carlo approach. *Research Quarterly for Exercise and Sport*, 82(3), 412-423. doi:10.1080/02701367.2011.10599773
- Osman, G., & Koh, J. (2013). Understanding management students' reflective practice through blogging. *Internet and Higher Education*, 16, 23-31. doi:10.1016/j.iheduc.2012.07.001
- Papastergiou, M., Gerodimos, V., & Antoniou, P. (2011). Multimedia blogging in physical education: Effects on student knowledge and ICT self-efficacy. *Computers & Education*, 57, 1998-2010. doi:10.1016/j.compedu.2011.05.006
- Park, Y., Heo, G., & Lee, R. (2011). Blogging for informal learning: Analyzing bloggers' perceptions using learning perspective. *Educational Technology & Society*, 14(2), 149-160.
- Pursel, B. K., & Xie, H. (2014). Patterns and pedagogy: Exploring student blog use in higher education. *Contemporary Educational Technology*, 5(2), 96-109.
- Rondon-Pari, G. (2011). Comparative analysis of classroom speech in upper level Spanish college courses: A Social constructivist view. *Contemporary Issues in Education Research*, 4(12), 1-18.
- Roszkowski, M. J., & Soven, M. (2010). Did you learn something useful today? An Analysis of how perceived utility relates to perceived learning and their predictiveness of satisfaction with training. *Performance Improvement Quarterly*, 23(2), 71-91. doi:10.1002/piq.20082
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78. doi:10.1037/0003-066X.55.1.68
- Sadera, W. A., Robertson, J., Song, L., & Midon, M. N. (2009). The Role of community in online learning success. *MERLOT Journal of Online Learning and Teaching*, 5, 277-284.
- Sánchez, B., Colón, Y., & Esparza, P. (2005). The Role of sense of school belonging and gender in the academic adjustment of Latino adolescents. *Journal of Youth and Adolescence*, 34, 619-628. doi:10.1007/s10964-005-8950-4
- Shana, Z. A., & Abulibdehb, E. S. (2015). Engaging students through blogs: Using blogs to boost a course experience. *International Journal of Emerging Technologies in Learning*, 10(1), 30-38. doi:10.3991/ijet.v10i1.4240

- Shobeiri, S. M., Rashidi, S., Meiboudi, H., & Saradipour, A. (2014). Effectiveness of blogging as a teaching aid in environmental education activities. *Journal of Educational and Management Studies*, 4(4), 800–806.
- Sivan, E. (1986). Motivation in social constructivist theory. *Educational Psychologist*, 21(3), 209-233. doi:10.1207/s15326985sep2103_4
- Smith, B. L., & MacGregor, J. T. (1992). What is collaborative learning? In A. Goodsell, M. Maher, V. Tinto, B. L. Smith, & J. T. MacGregor (Eds.), *Collaborative learning: A sourcebook for higher education* (pp. 10-30). State College, PA: National Center on Postsecondary Teaching, Learning, and Assessment Publishing.
- Smith, P. L., & Ragan, T. J. (2005). *Instructional design*. Hoboken, NJ: John Wiley.
- So, H. J., & Brush, T. A. (2008). Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors. *Computers & Education*, 51(1), 318-336. doi:10.1016/j.compedu.2007.05.009
- Top, E. (2012). Blogging as a social medium in undergraduate courses: Sense of community best predictor of perceived learning. *The Internet and Higher Education*, 15, 24-28. doi:10.1016/j.iheduc.2011.02.001
- Top, E., Yukselturk, E., & Inan, F. (2010). Reconsidering usage of blogging in preservice teacher education courses. *The Internet and Higher Education*, 13(4), 214-217. doi:10.1016/j.iheduc.2010.05.003
- Verenikina, I. (2008). Scaffolding and learning: Its role in nurturing new learners. In P. Kell, W. Vialle, D., Konza, & G. Vogl (Eds.), *Learning and the learner: Exploring learning for new times* (pp. 161–180). Wollongong, Australia: University of Wollongong.
- Vygotsky, L. S. (1978). *Mind in society: The Development of higher mental process*. Cambridge, MA: Harvard University Press.
- Wang, C. Y. (2010). Educational implications of blogs for enriching adult collaborative distance learning. *International Journal of Continuing Education and Lifelong Learning*, 2(2), 60-71.
- Wassell, B., & Crouch, C. (2008). Fostering critical engagement in preservice teachers: Incorporating weblogs into multicultural education. *Journal of Technology and Teacher Education*, 16(2), 211-232.
- Wertsch, J. V. (1984). The Zone of proximal development: Some conceptual issues. *New Directions for Child and Adolescent Development*, 1984(23), 7–18. doi:10.1002/cd.23219842303
- White, S. (1992). *Factors that contribute to learning differences among African American and Caucasian students*. (ERIC Document No. ED374177)
- Wigfield, A., & Eccles, J. S. (2000). Expectancy–value theory of achievement motivation. *Contemporary Educational Psychology*, 25(1), 68–81. doi:10.1006/ceps.1999.1015
- Woo, Y., & Reeves, T. C. (2007). Meaningful interaction in web-based learning: A Social constructivist interpretation. *The Internet and Higher Education*, 10, 15-25. doi:10.1016/j.iheduc.2006.10.005
- Xie, Y., Ke, F., & Sharma, P. (2008). The Effect of peer feedback for blogging on college students' reflective learning processes. *The Internet and Higher Education*, 11(1), 18-25. doi:10.1016/j.iheduc.2007.11.001
- Xie, Y., Ke, F., & Sharma, P. (2010). The Effects of peer-interaction styles in team blogs on students' cognitive thinking and blog participation. *Journal of Educational Computing Research*, 42(4), 459-479. doi:10.2190/EC.42.4.f
- Yang, S. H. (2009). Using blogs to enhance critical reflection and community of practice. *Educational Technology & Society*, 12(2), 11-21.
- Yang, C., & Chang, Y. S. (2012). Assessing the effects of interactive blogging on student attitudes towards peer interaction, learning motivation, and academic achievements. *Journal of Computer Assisted Learning*, 28, 126-135. doi:10.1111/j.1365-2729.2011.00423.x
- Zhu, C., Valcke, M., & Schellens, T. (2009). Cultural differences in the perception of a social-constructivist e-learning environment. *British Journal of Educational Technology*, 40(1), 164-168. doi:10.1111/j.1467-8535.2008.00879.x