

# Preparing Teacher Candidates to Teach Digital Citizenship: An Online Synchronous Peer-Teaching Practice

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## Abstract

The study examined the effect of a peer-teaching practice with synchronous technologies on preparing teacher candidates to teach digital citizenship. Candidates were required to work in small groups to 1) design, develop and deliver a 25-30 minute online workshop to their peers and 2) attend their peers' workshops. A mixed-method design was employed to collect data including a survey and a systematic examination of rubric responses and workshop video archives. The results showed that the practice helped prepare teacher candidates to teach digital citizenship. Candidates learned new knowledge, strategies, and resources from the practice and recognized its helpfulness to their learning about digital citizenship.

## Introduction

Due to technology advances, younger generations tend to have more knowledge about digital technologies than many adults do (Kara, 2018). However, knowing more about technologies does not guarantee that they know how to use technologies in an appropriate way, which causes problems not in compliant with digital citizenship standards (e.g., violation of intellectual property rights). Digital citizenship is defined as "the practice of defining the norms of appropriate, responsible behavior with regard to technology use" (Dotterer, Hedges, & Parker, 2016, p.59). Ribble (2015) proposed nine elements of digital citizenship, including digital access, digital commerce, digital communication, digital literacy, digital etiquette, digital law, digital rights and responsibilities, digital health and wellness, and digital security. Teachers, administrators, and parents have the responsibility of training younger generations to become good digital citizens and ensure they receive comprehensive instruction in digital citizenship (Dotterer et al., 2016; Isman & Canan Gungoren, 2014).

How to prepare teacher candidates to achieve competency in digital citizenship so that they can better educate their own students in the classroom is a topic worthy of discussion. Faculty members in teacher preparation programs have to offer training opportunities to help teacher candidates transfer what they have learned within the programs to real classroom settings (Faulkner-Beitzel, 2008). As more and more universities are offering online programs related to instructional technology for teacher candidates, it is becoming more important to research best practices to help teacher candidates gain competency in digital citizenship in online learning environments.

Peer-teaching promotes active learning and requires teacher candidates to take ownership of their own learning (Stigmar, 2016). It allows candidates to play different roles in the teaching-learning conversation and offers opportunities to achieve meaningful conversations with their peers (Garbett, 2011). There are formal and informal forms of peer-teaching. Formal forms include peer-tutoring, presentation or group work; informal forms include peer collaboration outside the class (Priharjo & Hoy, 2011). According to Vygotsky's Zone of Proximal Development, candidates can learn better with the scaffolds from more knowledgeable others (Haider & Yasmin, 2015; Vygotsky, 1978).

In an online program, using synchronous technologies gives teacher candidates opportunities to interact with a faculty member or peers in real time, just as they would in the traditional classroom (Brown, Schroeder, & Eaton, 2016; Chen, Ko, & Kinshuk, 2005). Advantages of using synchronous technologies include 1) offering immediate two-way feedback (Grogan, 2015), 2) reducing the feeling of isolation (Elluminate, Inc., 2009), and 3)

enhancing a sense of community (Elluminate, Inc., 2009; Parker & Martin, 2010). A synchronous communication tool can include features such as video, audio, text chat, instant polling, whiteboard, application/desktop sharing, emoticons, and breakout rooms that promote collaboration among instructor and learners (Brown et al., 2016; Martin & Parker, 2014). The commonly used synchronous tools include Adobe Connect, Blackboard Collaborate, Cisco WebEx, Google Hangouts, GoToMeeting, Saba Centra, and Skype.

### The Current Study

The purpose of the current study was to examine the effect of an online synchronous peer-teaching practice on preparing teacher candidates to teach digital citizenship in their own classroom. The online synchronous peer-teaching practice here referred to an online professional development workshop using Blackboard Collaborate. These two terms were used interchangeably in this paper. The following research questions were used to guide the study:

- 1) How did teacher candidates perceive the effect of the online synchronous peer-teaching practice on preparing them to teach digital citizenship in their own classroom?
- 2) What did teacher candidates learn in the peer-teaching practice from acting as both a workshop instructor and a learner? Did they see things differently when playing these two different roles?
- 3) Were there any changes to teacher candidates' perceived knowledge of digital citizenship before and after the peer-teaching practice?
- 4) What strategies and resources did teacher candidates plan to adopt from the workshops for teaching digital citizenship in their own classroom?

### Context of Study

This study was conducted in the introductory course of an online instructional technology program in South Georgia. The course included a one-month-long project that required teacher candidates to work closely together in small groups of 4-5 members to design, develop, and deliver a 25-30 minute synchronous online professional development workshop related to digital citizenship using Blackboard Collaborate. The project goal was to increase their knowledge of digital citizenship through the workshop development. Each group was instructed to choose a theme of Digital Citizenship focusing on either "Digital Law" or "Digital Rights and Responsibilities" as the workshop topic. Teacher candidates could select any topic specific to their teaching context under these two themes (e.g., "Plagiarism, Intellectual Property, & Copyright - Cite It, Don't Steal It!" or "Digital Footprint: What are you leaving behind?"). Peers in the same class acted as learners for the workshops. To prepare for the workshop delivery, each group needed to complete the tasks including 1) small group discussions, 2) a project plan, 3) weekly progress reports, 4) an online session with the faculty to practice using Blackboard Collaborate, and 5) workshop materials and assessments. Faculty and peer feedback were provided throughout the group work process (e.g., suggestions for improvement for a project plan). Candidates also needed to complete a rubric evaluating their peers' performance after attending the workshops.

### Research Design and Instruments

A mixed method design was employed in the study, including survey investigation and examination of responses to the peer-evaluation rubric and workshop video archives. First, a 25-item anonymous survey was used to understand the candidates' perceived effect of online synchronous peer-teaching practice on preparing them to teach digital citizenship in their own classroom. The survey structure was presented in Table 1.

Table 1. Survey Structure

Section	Content	Questions	Question Type
1	Gender	Q1	Demographic question
2	Comfort level using Blackboard Collaborate, and comfort level with online synchronous peer-teaching	Q2-Q3	5-point Likert scale questions
3	Perceived effect of online synchronous peer-teaching practice	Q4-Q7	5-point Likert scale questions
4	Workshop instructor and learner roles	Q8-Q16	5-point Likert scale questions
5	Self-rating of the knowledge of digital citizenship	Q17-Q20	Q17-Q18: 4-point Likert scale questions; Q19: 5-point Likert scale question; Q20: Open-ended question

6	Best strategies and resources to teach digital citizenship	Q21-Q25	Open-ended questions
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Second, candidates used a rubric to rate their peers' workshops based on the criteria including 1) organization & structure, 2) comprehensibility, 3) depth of thought, 4) design of workshop materials, and 5) preparation. They also had to explain what they learned from the each workshop. The responses to the rubric were examined using content analysis to understand what exact new concepts, strategies, or resources they have learned from the workshops. Third, the workshops were recorded and the archives were examined to understand what best strategies and resources had been utilized for teaching digital citizenship.

### Participants

Twenty-eight teacher candidates who enrolled in the course were invited to participate in the study in the Spring 2019 semester. Candidates were assigned to six groups for workshop completion. Of 28 candidates, nine completed the survey voluntarily (including eight females and one male). For data analysis, each survey respondent was coded using an ID starting with S. Since the survey was anonymous, the researchers had no way to know who completed the survey. Therefore, the candidates who gave permissions for evaluation of rubric responses and workshop video archives were coded using different IDs starting with R. Groups were randomly named by color (e.g., Group Blue). Permission was received from nine candidates to examine their rubric responses (including eight females and one male) and five workshop video archives. The workshop topics and activities were presented in Table 2.

Table 2. Workshop Topics and Activities

Group	Topic	Theme of Digital Citizenship	Activities Included	Blackboard Collaborate Features and External Tools Used
Blue	How to maintain a positive, professional digital footprint as an educator	Digital Rights and Responsibilities	Pre- and Post-Assessments, Mini Lecture and Scenarios	Audio, Instant Polling, Text Chat, Upload PPT, and Whiteboard
Green	Copyright	Digital Law	Pre- and Post-Assessments, Mini Lecture, and Scenarios	Audio, Text Chat, Web Tour, and Google Slides
Purple	Cyberbullying	Digital Rights and Responsibilities	Pre- and Post-Assessments; Mini Lecture, Videos, and Statistics	Audio, Emoticons, Instant Polling, Text Chat, Web Tour, Upload PPT, and Google Form
Yellow	Digital Footprint: What are you leaving behind?	Digital Rights and Responsibilities	Mini Lecture, Videos, Reading Activity, Hands-On Activity, Lesson Examples, and Workshop Survey	Audio, Text Chat, Web Tour, Upload PPT, Google Form
Red	Plagiarism, Intellectual Property, & Copyright - Cite It, Don't Steal It!	Digital Law	Pre- and Post-Assessments, Mini Lecture, Videos, and Workshop Survey	Audio, Text Chat, Google Slides, RQ Codes, and Google Form

### Results

Among the nine survey respondents, two felt uncomfortable using Blackboard Collaborate and seven of them felt either comfortable or very comfortable using Blackboard Collaborate. S1 provided an explanation about

why she felt uncomfortable with Blackboard Collaborate: “I was nervous at first because I am not comfortable using Blackboard Collaborate so I was worried I would have technical issues, but it went much better than I expected.” In addition, two of the candidates felt uncomfortable with online synchronous peer-teaching, and at the same time, seven of them felt either comfortable or very comfortable with online synchronous peer-teaching. Thus, overall, the majority of the participants had a high comfort level with using Blackboard Collaborate or online synchronous peer-teaching. The data from the survey responses, peer evaluation rubric responses and workshop archives were integrated together and presented by each research question.

### **Research Question One**

The research question one was to understand teacher candidates’ perceived effect of the online synchronous peer-teaching practice on preparing them to teach digital citizenship in their own classroom. There were four survey questions (Q4-Q7) related to this research question. Q4 related to learn-instructor interaction ( $M = 4.44, SD = .53$ ), which examined if candidates learned to engage their learners in dialogues or provide learners timely feedback during the workshop. Q5 covered learner-learner interaction ( $M = 4.44, SD = .53$ ). It examined if candidates were able to facilitate interaction and collaboration among learners during the workshop. Q6 asked about learner-content interaction ( $M = 4.44, SD = .53$ ). It examined if candidates were able to engage learners with workshop content and activities. Q7 concerned about learner-interface interaction ( $M = 4.44, SD = .53$ ). It examined if candidates were able to assist learners in using Blackboard Collaborate effectively for learning during the workshop. The means for these four questions were all above 4, which indicated that students agreed with the helpfulness of the online synchronous peer-teaching practice to support them to teach digital citizenship.

### **Research Question Two**

The research question two was to explore what teacher candidates had learned in the peer-teaching practice from acting as both a workshop instructor and a learner. There were six survey questions (Q8-Q13) related to the instructor role in the workshop. According to the descriptive statistics, the means for these six questions were all above 4, which indicated that candidates agreed acting as a workshop instructor enhanced their ability to 1) plan for clear instruction of digital citizenship to learners ( $M = 4.44, SD = .53$ ), 2) handle unexpected instructional situations ( $M = 4.33, SD = .50$ ), and 3) utilize technology effectively for teaching digital citizenship ( $M = 4.44, SD = .53$ ). Acting as a workshop instructor also 1) allowed the candidates to practice their strategies to teaching digital citizenship ( $M = 4.44, SD = .53$ ), 2) improved their strategies to teach digital citizenship through learners’ feedback ( $M = 4.33, SD = .71$ ), and 3) increased their self-confidence in teaching digital citizenship ( $M = 4.44, SD = .53$ ). For example, S6 confirmed that she did learn “how to collaborate online and take the role of an instructor in online platforms” from the workshop.

There were three survey questions (Q14-Q16) related to the learner role in the workshop. According to the descriptive statistics, the means for these three questions were all above 4, which indicated that candidates agreed acting as a workshop learner allowed them to learn new strategies to teach digital citizenship from their peers ( $M = 4.44, SD = .53$ ) and affirm their own strategies to teach digital citizenship ( $M = 4.33, SD = .71$ ). In addition, acting as a workshop learner also gave them a chance to reflect on their own strategies to teach digital citizenship ( $M = 4.44, SD = .53$ ).

### **Research Question Three**

The research question three was to explore if there were any changes to teacher candidates’ perceived knowledge of digital citizenship before and after the peer-teaching practice. There were four survey questions related to this research question. First, candidates were asked to rate their perceived knowledge of digital citizenship before and after the workshop using two 4-point Likert scale questions (Q17-Q18). According to descriptive statistics, the rating for the perceived knowledge of digital citizenship after the workshops ( $M = 3.56, SD = .53$ ) was higher than the rating for the perceived knowledge of digital citizenship before the workshops ( $M = 2.33, SD = .50$ ). Candidates perceived that they became either knowledgeable or very knowledgeable about digital citizenship after the workshops. In addition, according to the responses to Q19, candidates agreed that the workshops helped increase their knowledge of digital citizenship ( $M = 4.44, SD = .53$ ).

Six survey respondents for Q20 indicated that they learned new knowledge of digital citizenship. For example, S1 mentioned, “I was familiar with many of the topics covered, but I did learn a lot from the workshops. I learned in depth information on several topics including the definitions of many new vocabulary words that I was not aware of before.” S2 also expressed that she gained knowledge of digital citizenship from the workshops. She said, “I learned some great information and statistics regarding cyberbullying, plagiarism, copyright, and digital footprints. The workshops were very informative and eye-opening.”

Candidates provided more details about the new knowledge they learned in their rubric responses. The concepts mentioned repeatedly included copyright, cyberbullying, digital footprint and plagiarism. For example, R5 said, “I did not know there were so many different types of cyberbullying. 47% of young people are cyberbullied. 1 in 4 young people have been bullied more than once.” Not only did the respondents learn new knowledge, they also learned resources they could possibly apply to their own classroom. Just as R3 mentioned, “I learned of different lessons that can be used to bring awareness of the digital footprint for middle and high school students.”

#### Research Question Four

The research question four was to understand if there were any useful strategies and resources that teacher candidates could adopt to teach digital citizenship in their own classroom. Concerning the useful strategies and resources used to teach digital citizenship, real-life examples/scenarios, videos, statistics, assessments, and hands-on activities were repeatedly mentioned in both the survey responses and rubric responses (see Table 3). For example, Group Blue shared the scenarios of professional digital footprint in the workshop, which helped their peers understand how to maintain a positive digital footprint. Another example was that Group Purple shared a video of Amanda Todd (<https://www.youtube.com/watch?v=ni-Y3wU92iU>) to raise learners’ attention to the serious consequences of cyberbullying.

*Table 3. Useful Strategies Used to Teach Digital Citizenship*

Strategy	Frequency of Occurrence	Quote
Real-life examples/scenarios	7	S2- “One effective strategy is to use real-life examples and make connections.” R8- “This group shared some great tips on maintaining a positive digital footprint. They shared some great scenarios to show how leaving digital footprints can be tricky depending on the situation.”
Videos	6	S2- “I believe links and videos are the most effective resources.” R3- “Providing videos and examples of how cyber bullying can have devastating effects in someone’s life and legal consequences, was an eye opening.” R7- “The ten types of cyberbullying were very helpful, and the video was very powerful.”
Statistics	5	R2- “Use statistics to bring the topics to life.” R8- “I learned about the statistics related to cyberbullying. There was a much lower report rate than I initially thought. 48 states actually have defined laws against cyberbullying except for Wisconsin and Alaska. We have a 13% report rate in the state of Georgia. There is only a 16% overall. The highest percentage comes from harassing/threatening comments while the lowest percent comes from cruel pictures.”
Assessments	5	S2- “Online quizzes are also great resources if they relate to the workshop topic. Polling and assessing throughout the workshop helps keep the audience engaged.” R3- “Pre and post assessments were done to engage the audience.”
Hands-on activities	3	R3- “It was interesting to learn how searches play such a big part of our daily lives.”

#### Discussion

There were several findings from the current study. First, students agreed with the helpfulness of the online synchronous peer-teaching practice to support them to teach digital citizenship. Second, the online synchronous peer-teaching practice allowed teacher candidates to play as both an instructor and a learner when learning digital citizenship. As acting as an instructor, they learned how to 1) plan for clear instruction of digital citizenship, 2) handle unexpected instructional situations during the practice, and 3) utilize technology effectively for teaching

digital citizenship. In addition, through the online synchronous peer-teaching practice, they practiced their strategies to teach digital citizenship and improved their strategies through learners' feedback. The practice also helped increase their self-confidence in teaching digital citizenship. As acting as a learner, they learned new strategies to teach digital citizenship from their peers and affirm their own strategies. The practice also gave them a chance to reflect on their own strategies to teach digital citizenship. Third, candidates perceived that the practice helped increase their knowledge of digital citizenship. They agreed that they did learn new knowledge and resources they could possibly apply to their own classroom. Fourth, the use of real-life examples/scenarios, videos, statistics, assessments, and hands-on activities enhanced learning during the practice. Overall, the candidates' learning experiences through online synchronous peer-teaching practice were positive. Just as S6 said, "I think this class supported my learning in engaging, learning and teaching digital citizenship."

### Conclusions

According to the results, the peer-teaching practice with synchronous technologies helped prepare teacher candidates to teach digital citizenship. They learned new knowledge, strategies, and resources from the practice and recognized its helpfulness to their learning about digital citizenship. The sample size of the current study was small, which made it difficult to generalize the findings to a large population. However, it could still provide insights into preparing teacher candidates to teach digital citizenship using an online synchronous peer-teaching practice. Directions for future research could include more samples, employing interview techniques to explore candidates' perception in detail and using a pre- and post- assessment to measure the actual changes to candidates' knowledge of digital citizenship.

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