

# Examining Student Perceptions of Flipping an Agricultural Teaching Methods Course

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## Abstract

*To meet the needs of the 21st century student, college instructors have been challenged to transform their classrooms from passive to active, “minds-on” learning environments. This qualitative study examined an active learning approach known as a flipped classroom and sought to explore student perceptions of flipping a teaching methods course required in an agricultural teacher education program. Students offered mixed perceptions about this flipped class. The emergent themes included: (a) positive aspects of online lecture, (b) technological issues, (c) positive aspects of classroom learning activities, (d) negative aspects of classroom learning activities, and (e) student beliefs regarding the flipped classroom approach. Based on the findings from this study, a flipped classroom approach seems to have promise as a model for delivering a teaching methods class. As a result, we suggest other instructors of similar courses attempt a flipped classroom approach to test the model in other contexts.*

Keywords: teaching methods, flipped classroom, student perceptions

Complexities of the 21st century require instructors to be innovative thinkers when developing and delivering courses in postsecondary education. Instructors face several challenges when developing meaningful learning environments for students and are required to make decisions based on the goals and objectives of the course (McCarthy & Anderson, 2000). To meet the needs of students in the 21st century, the National Research Council (2009) challenged college instructors to move beyond passive learning environments to more active learning environments. Furthermore, recent technological advancements, social media interactions, massive open online courses (MOOC), and the increased need for students to be critical thinkers and problem solvers has greatly impacted course development and structure (Martin, 2012).

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The role of the teacher has shifted from the sole source of knowledge to the facilitator of the learning process in an active learning environment (Phipps, Osborne, Dyer, & Ball, 2008; Schunk, 2012). Student learning can be enriched by incorporating constructive activities utilized outside the classroom (Kuh, Schuh, Whitt, & Associates, 1991). Structuring courses to increase variability in content delivery can enhance student cognitive engagement (Rosenshine & Furst 1971). In the majority of college classrooms, the instructor talks and the student listens (King, 1993). The instructor transmits knowledge to the student, much like pouring water into an open container, in this case – the brain of the student (King, 1993). The transmittal model has become an antiquated method in teaching and learning and is not effective for developing the active learning techniques, critical thinking, and problem solving skills required by the 21st century learner (King, 1993). In order to render effective classroom instruction, instructors should design classroom activities to utilize active learning strategies, escalate student cognition, and maximize student engagement (King, 1993). Appropriate class interactions utilizing discussion and questioning strategies can increase student attentiveness and critical thinking skills (Blosser, 2000). Subject matter knowledge and basic skills are important building blocks for the broader competencies gaining value in the 21st century (Jerald, 2009).

This study examined one approach to implementing a variety of active and interactive learning activities to the learning environment, a flipped classroom. Specifically, this study investigated the impacts of using a flipped classroom model in an undergraduate agricultural education teaching methods course. This instructional model aligns with the AAEE National Research Agenda in examining meaningful, engaged learning in all environments, thus leading to increased achievement, life and career readiness, and professional success (Doerfert, 2011). The flipped classroom model utilizes educational technologies to shift traditional teacher-centered activities, such as lecture, to an online format for students to complete prior to scheduled class time (Conner, Stripling, Blythe, Roberts, & Stedman, 2014). Doing so provides an opportunity for students to gain background and lower level content knowledge outside of class, on their own (Conner et al., 2014). In-class time is then used by the instructor to engage students in more cognitively demanding, student-centered activities (Conner et al., 2014). As with the implementation of any innovative teaching approach, it is advisable to examine the outcomes to assess the process and complete the feedback loop. One important piece of this process is examining perceptions of the learners who experienced the innovation (Conner et al., 2014).

### **Literature Review and Conceptual Framework**

In 2000, Baker introduced the first flipped classroom model into higher education by shifting course lecture notes to an online format and capitalizing on in-class time for collaborative student-centered activities. Technological advancements provide many opportunities to improve the flipped classroom model specifically in relation to the impacts on student learning (Conner et al., 2014). Various new information technology resources aid instructors with strategies to flip their course structure (Martin, 2012).

The quality and structure of online lectures and recordings for a course are key components for motivating students to participate in learning experiences outside of scheduled class time, thus improving student learning outcomes (Conner et al., 2014). The out of class learning experience must be directly linked to the desired outcome of the instruction (Lage et al., 2000). When implementing the flipped classroom approach, instructors establish the expectation for students to come to class prepared to discuss and expand upon information from out of class learning experiences (Lage et al., 2000). In a flipped classroom, in-class activities can include homework, quizzes, problem solving and group work facilitated by the instructor (Gardner,

2012). Notably, along with appealing to multiple learning styles, an additional strength of the flipped classroom model is the increase in faculty-student interaction (Lage et al., 2000).

Acquiring skills required for the 21st century workforce require students to take ownership of their learning. Lage et al. (2000) found a flipped classroom model can enhance student motivation, and since students determined the flow of the instruction, they felt more responsible for their learning. Gardner (2012) also reported student self-regulation of learning contributed positively to learning outcomes in a flipped classroom.

Within the classroom, multiple opportunities for interaction between the teacher and the student occur. Roberts, Stripling, and Estep (2010) conceptualized this idea in their *Taxonomy of Learning Activities* model.

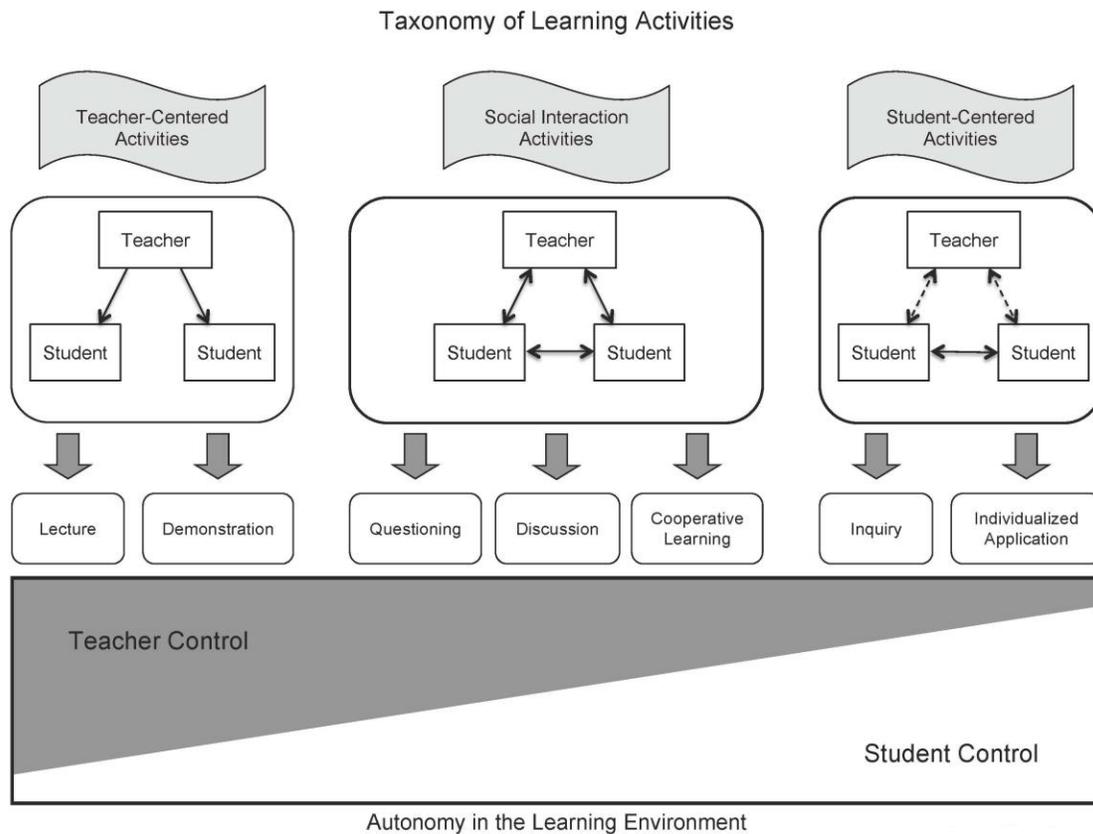


Figure 1. Illustration of the Taxonomy of Learning Activities Model (Roberts et al., 2010)

The flipped classroom approach to instruction focuses on learning activities described by Roberts et al. (2010) as social and student-centered activities. As is illustrated in Roberts et al.'s model, student autonomy increases from teacher-centered to social interaction to student-centered activities, and thus, the instructor has less control of the learning environment. In a more student controlled learning environment, the instructor's role shifts to that of a facilitator who guides and assists the learner in the learning process. In a flipped classroom, the majority of in-class time is used for social and student-centered activities, and therefore creates an active, rather than passive, learning environment for students (Conner et al., 2014).

Implementation of the flipped classroom model requires additional planning and preparation time for instructors and assumes students have access to a computer and the internet (Gardner, 2012). Gardner (2012) also emphasized the importance of student engagement in the

online segments of the flipped classroom model and encouraged instructors to include a mechanism to assure student engagement in the online content and preparation for in-class activities. Moreover, students may require additional technical assistance to make sure they can fully engage with the online content (Gardner, 2012). Strayer (2007) noted the importance of instructor motivation to provide opportunities for active, rather than passive, participation during scheduled class time. The flipped classroom model in an undergraduate level statistics course yielded mixed reactions on the course structure compared to a traditional class (Strayer, 2007). In an agricultural education teaching methods course, findings from Conner et al. (2014) were consistent with Strayer, (2007). Student perceptions of the flipped classroom model were mixed and somewhat perplexing (Conner et al., 2014). In both studies, overall, a high level of student satisfaction was reported. (Conner et al., 2014), findings suggested students perceived an increase in their pedagogical knowledge as a result of the implementation of the flipped classroom model in the teaching methods course.

### **Purpose**

Following a recommendation from Conner et al. (2014), this study served to replicate a previous study that focused on student perceptions of flipping a classroom. The purpose of this study was to explore student perceptions of flipping a teaching methods course within the agricultural education curriculum at the University of Florida.

### **Qualitative Perspective**

#### **Ontological Perspective**

Ontology is referred to as the study of being and construction of realities (Crotty, 2010). Crotty posited that ontology provides qualitative research with the what is to the theoretical and epistemological perspectives. This study utilized the ontological perspective of realism. Schwandt (1997) stated that realism “is the doctrine that there are real objects that exist independently of our knowledge of their existence” (p. 133). Furthermore, realism suggests that an individual’s reality is developed through interactions between the individual and the physical world (Turner, 2008). Therefore, individuals occupy a constructed reality that is influenced through their perceptions and interpretations of the physical world (Crotty, 2010).

#### **Epistemological Perspective**

Epistemology “is the study of the nature of knowledge and justification” (Schwandt, 1997, p. 39). Crotty (2010) further suggested that the epistemology of a research study is firmly embedded within the theoretical perspective and research methodology. This study utilized a constructionism epistemological perspective. Patton (2002) stated that an individual’s reality “is not real in an absolute sense, as the sun is real, but is ‘made up’ and shaped by cultural and linguistic constructs” (p. 96). Therefore, an individual’s reality is constructed through interaction, interpretation, and construction of meaning from a human’s ability to interact with their personal reality (Crotty, 2010).

#### **Theoretical Perspective**

A theoretical perspective is “an elaboration ... of the assumptions brought to the research task and reflected in the methodology as we understand and employ it” (Crotty, 2010, p.7). Koro-Ljungberg, Yendol-Hoppey, Smith, and Hayes (2009) further stated that a study’s theoretical perspective “could serve as one possible identifier, as a proxy, or as an explicit connection to the

researchers' epistemological awareness" (p. 688). This study employed the theoretical perspective of social-constructivism. Crotty (2010) stated that a social-constructivistic perspective should be utilized if the participants "enter social milieu in which a 'system of intelligibility' prevails" (Crotty, 2010, p. 54). Denzin and Lincoln (2000) defined social-constructivism as an individual's construction of knowledge and meaning through social interaction with the examined phenomenon. Further, Crotty (2010) stated that social interaction must take place, in order for meaning and knowledge to become established between human beings.

### **Researcher Subjectivity**

When conducting qualitative research, the subjectivity statement provides the researcher(s) an opportunity to describe and explore their personal subjectivity towards the phenomenon being researched (Preissle, 2008). The six researchers involved in this study were: (a) two agricultural education doctoral students, (b) two assistant professors of agricultural education (one was a doctoral student at the time of the study), (c) one associate professor of agricultural leadership, and (d) one professor of agricultural education. The researcher who conducted the focus groups has expertise in moderating focus groups and had no interaction with the course that was examined within the study. Five of the six researchers were formally prepared as teacher educators and taught school-based agricultural education in the public school system. Further, four of the six researchers were actively engaged in the instruction of the course content, both online and face-to-face components. One of the researchers was the lead instructor of the course, while three of the researchers were teaching assistants. Finally, four of the six researchers were involved in previous research that examined the utilization of the flipped classroom instructional strategy within an agricultural education teaching methods course.

## **Methods**

### **Description of Participants**

Participants of this study consisted primarily of junior and senior agricultural education preservice teachers at the University of Florida enrolled in a teaching methods course during the fall of 2012. Participants also included one horticultural science student who wanted to learn about teaching and four agricultural education graduate students working on teacher certification. The 32 participants included 22 females and 10 males. In an effort to keep all of the seniors/graduate students together and the juniors together for the focus groups, the researchers decided to use two large focus groups. Group one was comprised of 11 seniors and four graduate students totaling 15 participants and group two was comprised of 17 juniors. The juniors were taking this course as part of their first year of agricultural education courses, while the seniors and the graduate student were taking this course the semester prior to their student teaching experience. The students were not required to participate in the study and were given the opportunity to opt out the study. Each student was assigned a letter and a number for the purpose of data reporting. The letter J was used for the juniors and the letter S was used to represent the seniors and the graduate students.

### **Description of the Class**

The course used in this study was *Teaching Methods in Agricultural Education*. This 3 credit-hour course is typically taken during the junior or senior year of a student's degree program. The time of this investigation was the second instance the course was delivered in a flipped format. The course met two times each week face-to-face, once in the lecture section

attended by all students and once in lab sections attended by a smaller set of students. The lecture section focused on instruction and concept attainment. Lab sections focused on microteaching presentations by students. The flipped portion of this course included nine online modules. Each online module included a recorded lecture by the instructor focused on a specific teaching method and several video examples of students delivering a microteaching presentation using that method. The video examples consisted of microteaching examples of two agriculture teachers when they were preservice teachers in the same Teaching Methods in Agricultural Education course. Class time gained by using the online lectures was used for a variety of activities including: (a) example lessons presented by teaching assistants, (b) in-class planning time, (c) impromptu presentations by students, and (d) discussion of teaching methods. Additionally, students selected topics for their microteachings in the lecture portion of the course. Each student randomly drew a topic. The topic corresponded to the appropriate standards for the entry level agriscience course for secondary students in Florida.

### **Design of the Study**

A qualitative paradigm was selected for this study in order to gain an in-depth understanding of the phenomenon of study based on the perception of the participants (Denzin & Lincoln, 1994). Qualitative research allowed for the development of a holistic viewpoint in which researchers could analyze the verbal opinions and feelings of the participants (Creswell, 1998). This study was constructed using a generic qualitative methodology. Merriam (1998) described the generic methodology as methodology that “simply seeks to discover and understand a phenomenon, a process or the perspectives and worldviews of the people involved” (p. 11). According to Merriam, the basic qualitative method allows for flexibility and does not require one to subscribe to one particular methodology and thus has become a preferred methodology in educational research. This approach allowed for the participants to provide data rich in description, which then allowed for the emersion of reoccurring themes (Merriam, 1998).

### **Data Collection and Data Analysis**

Focus groups were selected due to the opportunity to collect data through the facilitation of questions to groups of individuals (Berg, 2001). Data were collected through the use of two focus groups. Each focus group lasted between 45 and 60 minutes in length. The conversation was recorded using a digital audio recorder and then was transcribed verbatim by an outside source. Additionally, the focus group facilitator took notes during the each focus group to provide an additional set of data. Notes were left in their original form and used for analysis. Data collection procedures were approved by the IRB at the University of Florida.

Data were analyzed using a thematic analysis method. Thematic analysis allows for the reduction of data and allows researchers to “focus on repeated words or phrases, case studies or evidence of answers to the research question/s which have been devised” (Grbich, 2007, p. 32). According to Grbich (2007) themes may emerge from researchers’ understanding of prior research; however, “data should speak for themselves initially before any predesigned themes are imposed” (p. 32). Researchers used the block and file approach to conduct the thematic analysis (Grbich, 2007). Data were chunked into smaller portions by color-coding segments of data in an effort to categorize the data into themes. After color-coding, data were reexamined in order to develop titles for each theme that emerged from the analysis. Appropriate data was then included as evidence of the particular theme.

To enhance trustworthiness the following procedures were considered: triangulation, member checks, dependability audit, and confirmability audit (Lincoln & Guba, 1985). Data

collected from focus group one was triangulated with the data collected from focus group two as well as notes collected from the focus group facilitator. In accordance with Lincoln & Guba (1985) multiple investigators were also used to triangulate the data. Member checking was done throughout the focus groups by verbally checking with participants to ensure data were recorded and interpreted accurately. Additionally, methodological decisions were written in a methodological journal to provide a dependability audit and a confirmability audit allowing researchers to connect findings directly to the data.

### Findings

The identified themes were labeled and further separated into subthemes. Themes included: (a) positive aspects of online lecture, (b) technological issues, (c) positive aspects of classroom learning activities, (d) negative aspects of classroom learning activities, and (e) student beliefs regarding the flipped classroom approach.

#### Positive Aspects of Online Lectures

**Simplicity.** Students in the course felt the online video lectures were easy to follow. S1 said, “they [online video lectures] were straight and to the point and easy to watch and easy to follow.” Student S1 stated, “his lectures were really easy to follow and he talked slow and he went over things multiple times.” Student J2 appreciated the opportunity to pause online videos and take notes. Student S2 “liked that the slides were available so we could print out the slides because I have taken another class where they have done the online and it’s really hard to be able to print them in order to take notes on them.” Student S1 felt the online videos were easy to access and appreciated being able to access the online videos through an iPhone. According to students, being able to use a cellular phone contributed to accessibility and ease of use. Additionally, student J3 felt the online lectures were a positive aspect of the course because they helped the students to remain focused in the course in order to prepare for the quizzes which were developed from the online lectures.

**Knowledge development.** Knowledge development was evident in the findings. Student J6 stated, “I really liked how it [online video lectures] actually got into our class . . . it was the lower levels that were allowed to take home and then the higher levels that we did in class together so he could supervise it.” The online videos assisted student J8 with knowledge development by allowing him to reference the online video lectures and use them to further his development of the concepts. Similarly, S8 felt the online video lectures served as a foundation of learning. She used the online video lectures to become acquainted with the concepts before class and then as a review to solidify the concepts after class (S8). Student S8 also felt online video lectures helped her learn due to the auditory method of delivery and the repetition that was provided. Repetition of learning about the content through online lectures and then again through in class assignments helped student J3 to grasp and retain the content. Student J5 felt the online lectures allowed the students to learn the basics of the material prior to attending class and served as preparation for the application of the content.

## Technological Issues

Recordings of microteaching examples were of poor quality and were difficult to interpret due to the sound quality (J1; S1; S7). Technological issues were identified during the recording of microteachings included with online video lectures. Student S1 and J1 noted the microphone was placed too close to the presenter's mouth contributing to sound distortion. S1 stated, "videos [microteachings] we had to watch were poor quality so you couldn't understand what they [presenters] were saying a lot of the time." Additionally, student S3 expressed technological issues due to the media platform in which the microteaching videos were posted. S3 had trouble watching the microteachings on YouTube because the computer would freeze periodically.

## Positive Aspects of Classroom Learning Activities

**Knowledge development.** Learning activities during class time helped some students learn new knowledge helping them become competent teachers. Student J9 felt modeling teaching methods in class helped her gain an understanding of how various teaching methods could be used in the secondary classroom. Modeling demonstrations increased the confidence of student J9, helping her to deliver a successful microteaching lesson in the lab portion of this course. Student S1 felt modeling examples allowed for repetition and helped in understanding the various teaching methods. The modeling demonstration allowed student J9 to think about how she would alter the lesson and teaching methods used in order to meet the needs of her students.

Additionally, student J10 learned through participating in a cooperative learning activity in which students were charged with developing and implementing a demonstration designed for the secondary classroom. "We had to do it [develop/implement a demonstration] on our own [in groups] and that was just fun, it gave us practice, but it was just fun. So like, letting us practice in a small setting like that was a lot of help" (J10). Time devoted to classroom discussion about teaching methods and content of the course proved to be a viable form of knowledge development (S9). Additionally, students S1 and S7 felt time given in class to work with their classmates and instructors to develop their lesson plans was beneficial. Student S1 said "I liked having the class time to work on our labs and get feedback because I'd rather do that than send an email and wait for a response." Student S7 agreed with student S1 and felt class time devoted to getting feedback from instructors was beneficial because it meant that instructors did not have to "work with them on their time and when they are going to be in their office."

The learning activities used in the classroom allowed student S2 to learn about various teaching methods and to learn how to incorporate them into an agricultural classroom. Student S2 stated,

This class was really in my opinion more about getting the experience not so much like getting the material you are going to teach in the spring and it would be nice if you could have that but it's more about figuring out what a cooperative lesson is, what a cooperative learning lesson versus a lecture versus a demonstration and kind of learning the differences between them.

### Negative Aspects of Classroom Learning Activities

**Teaching assistant consistency.** Students expressed concern regarding consistency between the three teaching assistants (TAs). Student J4 felt TAs were not always knowledgeable or aware of the content that was being taught in the course. Student J7 felt TAs were unaware or ignored examples of good PowerPoint techniques taught in the class. Student J6 felt some of the TAs acted like they created poor examples of PowerPoint presentations on purpose to see if students would notice. Students were not happy when PowerPoint presentations did not meet guidelines and expectations they were expected to use (J1; J3; J4; J6). Additionally, many of the students felt the quizzes given in class were graded unfairly by different TAs (J2; J4). Student J2 stated, “some are easy graders, some are hard graders.” Student J9 felt that he was graded unfairly. He stated, “mine [quiz] was graded different. I felt I was graded harder than other people” (J9). Additionally, topics for the student’s lab presentation were often selected during class time. Student J4 and J10 felt that all of the TAs did not disregard the topics/standards that were inappropriate for the specific microteaching. Student J10 said,

They [microteaching topics] were random, like you just drew it of the envelope, like and they didn’t necessarily put “ok these are all of the objectives [microteaching topics]” that could be [used for] a demonstration. They [TAs] didn’t weed them out, like separate them. You just drew and what you got, you got.

However, student J4 indicated that her TA allowed students in the section to redraw and student J3 said the TA pulled some topics out and did not use them for the particular teaching method.

**Negative impact on knowledge development.** Some students felt learning activities used during class time were a waste of time and did not contribute to learning (J2; J6; J7; S4; S9). Class time was occasionally given to allow students to develop their lesson plans and communicate with everyone in the room in order to develop an effective lesson plan. Some students did not value this time or believe it contributed to learning (S4; S9). Student S9 stated, “I can’t work, I just can’t sit there and just not write my lesson plans unless I had some earplugs with me or something.” The noise in the classroom from other students discussing their lesson plans prevented student S9 from developing any portion of the lesson plan in class. Student J7 felt that the use of class time for lesson plan development was an ineffective use of class time because lesson plan development should be homework and done at home.

### Student Beliefs Regarding the Flipped Classroom Approach

Student J7 felt the flipped classroom approach was an excellent idea because the approach allowed time for further depth and discussion during class hours and prevented the student from having to find time outside of class to discuss the content in depth. However, student J1 felt it was important to ensure class time was used to cultivate learning by going further into the content and not simply repeating content taught through online videos. Online videos helped with the retention of content knowledge due to the relatively short length of the presentations and the ability to review online video more than once (J4). Student S1 felt the flipped classroom approach went well, but was challenging to keep up with if you forgot to watch the online videos prior to attending class.

### Conclusions, Recommendations, and Implications

Students offered mixed perceptions about this flipped class. Recorded online lectures were received favorably and students appreciated the ability to work through lectures at their own pace and repeat them as much as they deemed necessary. Students also appreciated having notes pages to print out and the flexibility in how they watched the online lectures, including mobile platforms. These same positive aspects of a flipped classroom had been noted in other examples (Shimamoto, 2012; Strayer, 2007). In the previous implementation of this approach (Conner et al., 2014), students offered specific critique of online lectures. Based on that feedback, the lead instructor made several adjustments to these lectures. Based on results of this study, the adjustments seem to better meet students' needs and had a positive effect on student learning as well as perceptions of the flipped classroom approach.

Student feedback from the first implementation of this flipped class (Conner et al., 2014) led the instructor to add video examples of students delivering the specific teaching method taught in the online lecture. Students in the current study were not satisfied with the quality of videos, noting both audio and visual issues. The importance of using high-quality audio-visuals is noted throughout the literature (Phipps et al., 2008). Poor quality videos may have actually impaired learning. We suggest the instructor replace the video examples with higher quality videos offering a better opportunity for students to observe and evaluate example presentations.

Students offered both positive and negative comments about the in-class activities. Students felt the activities allowed them to better understand the concepts taught in the online lectures. They also appreciated the opportunity to practice in a safe environment. The same perceptions have been observed in other flipped classrooms (Conner et al., 2014; Lage et al., 2000; Strayer, 2007). However, not all students appreciated the flexible use of scheduled class time, noting the noise sometimes made it difficult for them to make progress on their own work. A similar observation was noted in the first implementation of the flipped course (Conner et al., 2014). The varying responses by students imply that this approach may not be appropriate for all students. We suggest the instructor explore ways to structure the flexible class time to allow students both opportunities for interactivity and opportunities for quiet independent work with feedback from the instructor.

Overall, students felt the flipped classroom approach was an effective approach to learn concepts in the class. This finding is consistent with students from the previous iteration of the course (Conner et al., 2014) and similar to other examples of flipped classrooms (Lage et al., 2000; Shimamoto, 2012; Strayer, 2007). As such, we conclude students believe this approach is a satisfying way to learn teaching methods. However, this study did not actually assess student mastery of the concepts; thus, we recommend a follow-up study be conducted to actually assess student abilities.

This study also revealed a challenge that may not be directly related to the flipped classroom approach – inconsistencies in TA performance. Although these issues may occur from time to time in college courses, the increased emphasis of instructor (including TAs) interaction with students in the flipped classroom approach may actually exacerbate any problems with TAs. We suggest the instructor take steps to better prepare TAs to accurately and consistently interact with students.

Based on the findings from this study, along with findings from the prior study (Conner et al., 2014), a flipped classroom approach seems to have promise as a model for delivering a

teaching methods class. We suggest the instructor continue this approach and implement the changes noted earlier. We also recommend the instructor continue collecting data to assess the effectiveness of this approach. Moreover, we suggest instructors of similar courses attempt a flipped classroom approach to test the model in other contexts.

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