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Using a Flipped Classroom to Improve Student Analysis and Feedback to Peers in the Reciprocal Style of Teaching

NOLAN CAREY, KELLY L. SIMONTON, AND
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Ms. Sullivan's fourth grade class is learning how to perform the forehand stroke using a short-handled racquet. To start the lesson, Ms. Sullivan goes over the four main cues of the forehand stroke and then provides her students the opportunity to practice this new skill at their own pace along the wall. After a few minutes, Ms. Sullivan stops the activity and informs her students that they will be trying a new activity called "reciprocal teaching." To demonstrate this, Ms. Sullivan asks Suzie to be her partner. Ms. Sullivan explains how Suzie will perform (doer) three trials for each skill cue while she observes and provides specific feedback after each third attempt. Upon completion of Suzie's 12th and final trial, Ms. Sullivan provides her last specific feedback statement (i.e., "Suzie, good job stepping with your opposite foot") to Suzie, succeeded by the switching of roles whereby Ms. Sullivan becomes the doer and Suzie becomes the observer. Ms. Sullivan performs the forehand stroke along the wall three times while Suzie watches. After the third attempt, Ms. Sullivan asks Suzie to provide a specific feedback statement (like the one she provided) related to her performance but instead she receives a blank stare. Ms. Sullivan says, "Maybe I should step with my opposite foot" to help elicit a response. Suzie, taking the hint, shakes her head in the affirmative. The class immediately pairs up to replicate the reciprocal style of teaching demonstrated by Ms. Sullivan and Suzie. As time passes, it becomes increasingly apparent to Ms. Sullivan that many of her students

are struggling with observing the skill and providing accurate feedback. "How can I use this style of teaching while ensuring that students are receiving accurate feedback from their peers?," Ms. Sullivan asks herself.

This scenario serves as an example of how teachers can find themselves in a predicament when trying different pedagogies to improve their instructional practices for more dynamic learning within physical education. When teachers utilize student-centered pedagogies that can target student learning in all three domains, it can enhance student motivation and the overall learning experience (Blankenship, 2017; Dyson et al., 2004). The national content standards presented by SHAPE America – Society of Health and Physical Educators (2013) suggest that a more holistic approach to teaching is needed to ensure that students reach psychomotor, cognitive and affective learning outcomes. One instructional strategy that teachers can adopt to make this ideal a reality is the reciprocal style of teaching (Mosston & Ashworth, 2008). The purpose of this article is to first provide evidence that supports the reciprocal style of teaching in promoting learning across all three domains and then to provide a short description of how a flipped classroom can be used to address Ms. Sullivan's concern about the accuracy of observer/peer tutor feedback, which is a main pillar of the reciprocal style of teaching.

What Is the Reciprocal Style of Teaching?

Mosston and Ashworth (2008) identified 11 teaching styles that range across a spectrum from teacher- to student-centered foci. The reciprocal style of teaching is the focus of this article because it is a common teaching style used by physical education teachers worldwide (Cothran et al., 2005). Research has shown that the reciprocal style of teaching can promote many different desirable learning outcomes. For example, Kolovelonis et al. (2011) found that the reciprocal style of teaching can promote motor learning outcomes related to the basketball chest pass. Ernst and Byra (1998) revealed that the reciprocal style increased student cognition about the critical skill elements of juggling. Lastly, desirable affective learning outcomes were found in Byra's (2006) study, because the reciprocal style created a positive motivational climate where students experienced feelings of joy and empowerment. These findings show how the nature of the reciprocal style allows for all learning domains to be addressed with priorities in the cognitive and affective domains attributed to the observer (tutor) and opportunities to improve psychomotor performance are afforded to the doer who is practicing the task and receiving quality feedback from their peer. In sum, this style can enable teachers to support their students in reaching a plethora of content standards and learning outcomes, which has led many scholars to recognize the reciprocal style of teaching as a best instructional practice within physical education (Mosston & Ashworth, 2008).

The purpose of using any teaching style is to select the style that best supports the intended learning outcomes of a given lesson. One style is rarely used in an entire lesson but is used episodically for specific tasks. A teaching episode using the reciprocal style typically involves the partnering of students into dyads wherein one student becomes the doer (performer) and the other becomes the observer (tutor). The doer is expected to perform the task or skill, and the observer provides specific feedback to the doer about their performance related to the critical skill elements of the task. After the doer performs the activity and receives feedback from the observer, the two then switch roles so that the observer becomes the doer and vice versa. The physical education teacher's role within a reciprocal style framework is to (a) clearly demonstrate the task structure and the role of the observer and doer, (b) emphasize the critical elements of the skill that should be the focus of observation for the observer, (c) showcase how to provide and receive feedback statements, (d) provide students with a task card (e.g., wall chart; projected visual representation) that reinforces the key points of the demonstration and allows for the tracking of performance, and (e) monitor student learning during activity time while interacting only with the observers to ensure that their provided feedback is congruent with the doer's performance (Mosston & Ashworth, 2008). This style of teaching can be used as a temporary task structure within a lesson or provide the framework for an entire unit of instruction as seen within a peer teaching model (Metzler, 2011).

In many ways, the reciprocal style of teaching is dependent on the ability of the observer to correctly detect skill error, because this affects feedback and the subsequent performances of the doer. Ms.

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Sullivan's concern is something all physical education teachers employing this style have; that is, can my students provide accurate feedback? As Ward et al. (2005) pointed out, most studies that have shown tutors to be accurate in their feedback employ some form of skill error detection training. Furthermore, there are a few studies on the reciprocal style of teaching that have examined observer feedback accuracy without including skill detection error training. Mixed results were found in these studies. The researchers found that some observer feedback was inaccurate or lacked the critical skill element that most affected doer performance (Hennings et al., 2010; Kolovelonis & Goudas, 2012). This suggests that for the reciprocal style of teaching to be most effective, it would be beneficial for teachers to employ some form of training to increase the diagnostic capacity of their students. Employing observer training, however, can often be a difficult task for physical education teachers given the limited instructional time offered in schools (Kohl & Cook, 2013). One instructional strategy that addresses this concern is a flipped classroom. In the next section, a description of this instructional strategy is provided in addition to four simple steps that teachers can use to integrate a flipped classroom within the framework of the reciprocal style of teaching.

Flipped Classroom

There are many limitations to traditional, lecture-based teaching in addition to the use of only direct instructional techniques in promoting student learning and engagement (Dyson et al., 2004; Tucker, 2012). Thus, with the advent of technological advances and access to learning at home, other informational pathways for students to learn content have been developed, such as a flipped classroom (Bergmann & Sams, 2014). The flipped instructional process involves teachers providing support in allowing their students to learn subject-matter content outside of the classroom, at their own pace, and then having students apply the newly formed knowledge to interactive activities within the classroom (Bergmann & Sams, 2014). Over time, this modality of delivering instruction, which inverts the typical content process, has become known as a flipped classroom.

A flipped classroom has become much more efficient and prominent with the growth of online learning and online platforms that teachers can use to share information rapidly. This allows teachers to provide online instruction that precedes in-person learning. The online phase of a flipped classroom involves the use of videos, PowerPoint slides, diagrams and/or articles to prepare students for the topic of discussion in class (Bergmann & Sams, 2014). The subsequent stage of a flipped classroom, the in-person learning phase, requires students to apply the knowledge they learned from the online phase "to work through problems, advance concepts, and engage in collaborative learning" (Tucker, 2012, p. 82). One of the benefits of this modality is that it can reduce the amount of class time used for direct instruction, which allows the teacher to create more meaningful learning experiences and work independently with students to accommodate specific learning needs (Bergmann & Sams, 2014). Overall, research has shown that a flipped classroom can increase student achievement in a variety of subject areas (Aidinopoulou & Sampson, 2017; Katsa et al., 2016).

Investigations that have examined the effect of a flipped classroom within a physical education setting have produced promising results. For example, there is evidence showing that a flipped classroom can improve psychomotor outcomes (Lin et al., 2022), help students learn sport concepts (Ferriz-Valero et al., 2022) and be more

motivating for participants (Koh et al., 2021; Østerlie, 2018; Østerlie & Kjelaas, 2019). To improve the reciprocal style of teaching and the overall capacity of observers to provide accurate feedback, physical educators are encouraged to use a flipped classroom. Four simple steps that physical educators can follow to improve the overall quality of peer observer feedback are presented in the remainder of this article. The four steps are (a) develop or find content, (b) embed formative assessments, (c) upload content and (d) review responses.

Step 1: Develop Content

Flipped learning can only occur if students are exposed to the content before the start of class. Therefore, if you wish to use a flipped classroom, you must either develop or seek content that is directly related to the task or skill that will be performed in person. For example, Ms. Sullivan could have developed and uploaded a video of her performing the forehand stroke with the associated critical skill elements to an online platform that students could have accessed before the lesson. Ms. Sullivan's students might have been more inclined to provide accurate feedback if they received prior exposure to this content. Videos are ideal because they provide visual and auditory information that students can use to supplement their learning. Other mediums of information such as PowerPoint slides or articles can be useful as well. Nevertheless, you should develop or find content that shows the critical elements of the skill and task structure that will occur in class. Videos and written materials can be quite short. In fact, we recommend that videos be no longer than 6 min in length and that written presentations be no more than a page or three to four slides (PowerPoint) in total. Although students can work at their own pace, we recommend that these tasks (e.g., videos) not exceed 15 min in total time for students to complete.



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Step 2: Embed Formative Assessments

Once the content has been developed, the physical education teacher must embed formative assessments within the content to hold students accountable for their learning. This can take shape in various forms, with one common approach being to curate multiple choice questions or written response statements within the developed video(s) using online software such as Edpuzzle. The teacher can thus ensure that students are coming to class with prior knowledge about the reciprocal style task structure, critical elements of the skill and different forms of feedback. An example multiple-choice question embedded within a video showcasing the forehand stroke is presented in Figure 1. Students are asked to identify which aspect of the skill is performed incorrectly by selecting one of the provided feedback statements. This helps direct students' attention to the

The screenshot shows the Edpuzzle interface for a video titled "Forehand stroke (Correct and In...". The video player is paused at 00:42. To the right of the video, a multiple-choice question is displayed:

Multiple-choice question

Which of the following represents an accurate corrective feedback statement that the tutor could give to the learner based on this current attempt?

- Good job gripping the racket but next time try to swing the racket straight forward.
- Good job gripping the racket but next time try to keep your shoulders to the target.
- Good job gripping the racket but next time try to step with your opposite (left) foot.

Figure 1.
Example multiple-choice question embedded within a forehand stroke skill video that focuses on providing accurate corrective feedback

Table 1.
Example Questions That Can Be Embedded
Within Skill and Task Structure Videos

Skill Video	Task Structure Video
Which skill cue is absent from the doer's performance?	Which of the following best describe the job of the observer?
Which of the following corrective feedback statements addresses the absent skill cue?	Which of the following best describe the role of the doer?
Which of the following positive feedback statements is <i>not</i> accurate based on the doer's performance?	Which of the following best describe how this task should be set up?
Please provide a positive specific or corrective feedback statement based on the doer's current performance (written response).	Where should the observer be standing while the doer performs the forehand stroke?
	What are the four main skill cues of the forehand stroke that the observer should be focusing on?
	How many trials should the doer perform during the activity before everyone switches roles?



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rate has been met. Table 1 provides example questions that can be embedded within a skill and/or task structure video.

Step 3: Upload the Content

After the content has been created and embedded with formative assessments that increase student accountability, you are now ready to upload the material as a mandatory assignment to whichever online platform your school uses (e.g., Google Classroom, CANVAS, Blackboard). Students should be familiar with these platforms from their other classes, but you should consistently upload assignments throughout the school year so students become accustomed to the software interface. In addition, teachers should utilize class time early in the school year to walk students through the ins and outs of navigating the online platform. Assignments should be uploaded at least a few days before the lesson will be taught so students have time to complete it at home. Concerns about platform and technology availability must be evaluated before using these strategies. Identifying platforms that can be accessed in a myriad of ways should be targeted to ensure that students can find alternative

critical skill elements of importance in relation to the doer's movements as depicted in the video.

It is recommended that you upload two video clips, one demonstrating the skill in question and one explaining the reciprocal style task structure that students will experience in class. By using online software, physical educators can set parameters to require a 100% correct (multiple-choice) response rate for students to receive credit for the assignment in a formal summative way and/or to move on to the next video in a formative assessment fashion. From a formative assessment perspective, students should be permitted to learn from their mistakes and watch/complete the video as many times as necessary until the success

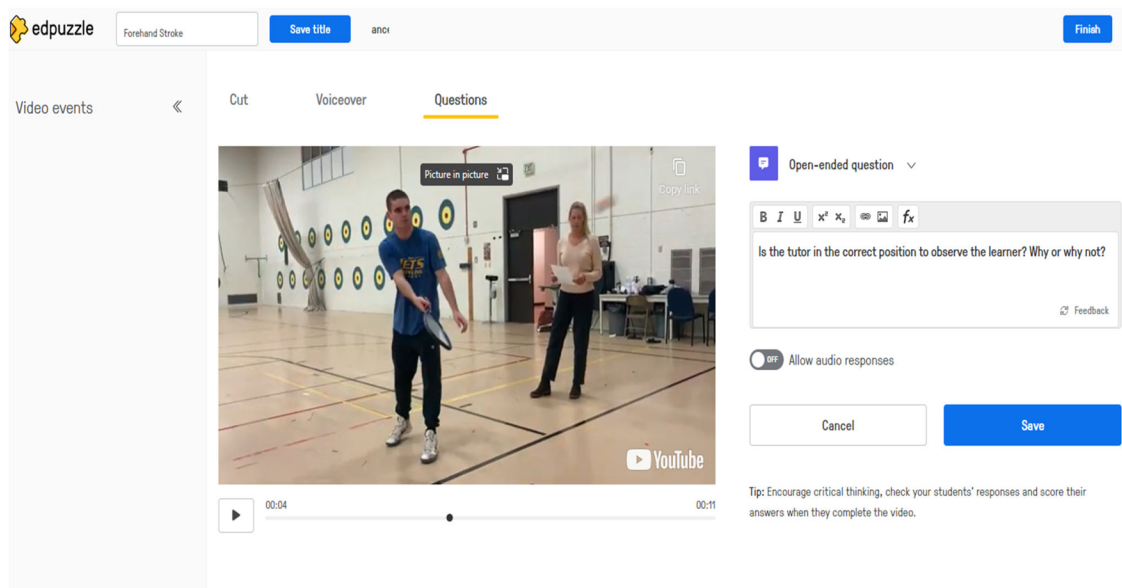


Figure 2.

Example open-ended question in a task structure video related to the forehand stroke. Students are asked whether the tutor is positioned in the correct location and must provide a rationale for their answer.

pathways to access the technology they need to complete online assignments. Physical education teachers who implement a flipped classroom should be aware of their students' needs and privately provide solutions (e.g., school library, public library, borrowing school laptops, etc.) for those who do not have access to technology in their households.

Step 4: Review Responses

Steps 1 to 3 addressed the online phase of a flipped classroom and how to develop and upload content to an online platform that students can access before class to increase their diagnostic capacity related to the peer teaching task. Now students are in your class with prior knowledge about the task structure and skill. This means that demonstrating the reciprocal style of teaching during the lesson is no longer necessary, saving the teacher considerable time on instruction that can now be used for activity. Only a brief review of the task structure and student responses to the open-ended questions posed online will be needed. That is, the multiple-choice responses provide feedback or knowledge of results, but students will not know the correctness of their open-ended responses until they are reviewed in class (see Figure 2). This will help clarify any misconceptions that students may have about their role in the task, as well as reinforce the critical skill elements of focus and how to provide feedback statements. After the students receive this brief review, they should be partnered up and given a task sheet/wall chart so they can perform the reciprocal style of teaching episode observed online and briefly reviewed at the start of class. Teachers who use a flipped classroom will find that it quickly and concisely demonstrates a reciprocal style of teaching episode that addresses psychomotor, cognitive and affective learning outcomes.

Conclusion

A flipped classroom can potentially increase observer capacity to provide accurate feedback statements while maximizing class time, which in turn can foster student cognition and motor development related to the skill by offering students more opportunities to respond to the task at hand. Physical education teachers are strongly encouraged to use a flipped classroom to improve the overall quality of the reciprocal style of teaching. This can be accomplished by following the four steps previously mentioned. Although there may be a learning curve for some in terms of developing and uploading content online, most physical education teachers will find the transition worth it when student learning increases and the pressure to execute a long demonstration in class decreases. These recommendations will likely support learning beyond basic skill development also in terms of content knowledge, game/activity assumptions, and learner affect and social outcomes. What has been presented in this article specific to the reciprocal style of teaching is also very likely applicable to the self-check, inclusion, guided discovery, convergent discovery and divergent discovery teaching styles. All of these teaching styles are very much student centered and have the potential to promote student learning in all three learning domains.

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