

Teaching Spectrum-Style—Part 2

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This article is the second in a series of three on the Spectrum of Teaching Styles (the Spectrum) (Mosston and Ashworth 2008). The primary purpose of this series is to help teachers expand their tool box of instructional strategies in order to meet the diverse needs of their students and the multiple learning outcomes associated with teaching K-12 physical education. As per the theme of this issue of *Runner*—“Life Is a Journey”—expanding one’s tool box of instructional strategies is an ongoing process, as is being physically active. It never finishes. The truly educated never graduate, just as those who are truly physically active never stop being physically active.

In the first article (Byra 2018), I examined the general Spectrum framework and the two teaching styles most frequently observed in K-12 physical education worldwide (Cothran et al 2005)—style A (command) and style B (practice). In this article, I present the three remaining teaching styles from the reproduction cluster—style C (reciprocal), style D (self-check) and style E (inclusion). I describe each style, provide example scenarios and practical suggestions for implementation, and examine each style in light of Alberta’s K-12 physical education learning outcomes (Alberta Learning 2000).

The common instructional approach across all five teaching styles from the reproduction cluster (styles A-E) is the requirement for learners to reproduce a known movement—that is, performing a movement that has been modelled (demonstrated) and subsequently practised, with the goal of replicating the modelled movement. Although styles C, D and E fall within the reproduction cluster, they differ significantly from styles A and B in terms of student engagement in decision making. In style C, the increase in student decision making relates to assessing a partner’s level of skill performance to include giving and receiving skill-related feedback to the partner. In style D, it relates to self-assessing one’s own skill performance, and in style E, to self-assessing one’s own skill performance and choosing a level of difficulty for a task. In addition to making these new decisions, students continue to be invited to make decisions about where they locate in the movement setting; when they

start, stop and move on to new tasks; and the pace at which they practise a task—all within parameters established by the teacher, as is the case in style B. In styles C, D and E, student decision making reflects characteristics of student-centred teaching (Rink 2014).

Style C—Reciprocal

In physical education, a commonly employed peer-tutoring structure is the reciprocal style of teaching (Mosston and Ashworth 2008). In style C, learners are paired; while one (the doer) performs the modelled task, the other (the observer) observes. The role of the observer is to evaluate the performance of the doer and to give feedback based on the a priori movement criteria (task sheet) provided by the teacher (see Appendix A). The steps in analyzing performance and giving feedback are as follows:

1. Know the critical skill elements.
2. Observe the doer’s performance.
3. Compare and contrast the doer’s performance against the critical skill elements.
4. Draw a conclusion about the accuracy of the doer’s performance.
5. Communicate this result to the doer.

Once the doer completes the task as prescribed, the doer and observer switch roles. The name of this style—reciprocal—reflects how both partners serve in the roles of doer and observer.

In addition to showing students the roles of doer and observer when demonstrating the task, the teacher must carefully listen to the feedback the observer provides to the doer during practice time to ascertain the degree of congruence between the doer’s movement performance and the observer’s feedback. To maintain the integrity of style C, it is important that the teacher interacts only with the observer (not with the doer) during practice. Refraining from giving skill-related feedback to the doer will initially be difficult, because this is not what the teacher is used to doing. The ability to address skill

Style C Scenario

Mrs Lee is teaching her Grade 5 students the forearm pass in volleyball as it is used in game play (that is, serve receive). During the first part of the lesson, the students have been practising the forearm pass in pairs, from a two-handed underhand toss, while located on the same side of the net (with one standing between the baseline and the attack line, and the other between the net and the attack line), as well as in groups of three (with one tossing the ball over the net to the passer, who attempts to pass the ball to the catcher located at the net). See Figure 1.

MRS LEE. Students, please come in and sit down. Let's add the role of observer to this current task. In our next task, each of you will be observed while passing the ball and will be given feedback about your performance. John, Madelyn, Barry and Emily, please stand up. You four will be working together in this drill. (See Figure 2.) John, you stand on the attack line on this side of the net. (Moves him to that spot.) Take this volleyball with you. You will be the tosser. Madelyn, you stand just beyond the attack line on the opposite side of the net. (Moves her to the spot opposite John.) You will be the passer. Emily, you need to stand right next to the net, same side as Madelyn. (Moves her to that spot.) You are the catcher. You will catch the ball (overhead in volleying position) that Madelyn passes to you. Then you will roll the ball back to John. Barry, I want you to stand five feet away from Emily, next to the net. (Moves him to that spot and stands beside him.) You are the observer. You will need this task sheet. (See Appendix A.) Your job is to tell Madelyn what she did well on or what she needs to work on after each pass attempt. Students (addressing the rest of the class, who are sitting and watching the demonstration), please look at the poster on the wall. (The poster is the same as the task sheet.) Are you all ready? John, please toss the ball (underhanded) to Madelyn, just like you were doing in the last drill.

The three students demonstrate the task as described. Barry observes Madelyn's performance but doesn't say anything to her.

MRS LEE. Barry, what did Madelyn do well on that pass?

BARRY. She had her elbows locked when passing.

MRS LEE. Excellent observation! Now, Barry, as the observer, what do you have to do?

BARRY. Tell Madelyn how she did.

MRS LEE. Super. Now, please do that.

BARRY. Madelyn, you did a nice job of locking your elbows on that pass.

MRS LEE. OK, John, toss the ball to Madelyn one more time. Barry, be prepared to tell Madelyn how she does.

The three students once again demonstrate the task.

BARRY, after Madelyn passes the ball. Madelyn, I like how you kept your thumbs together on the pass.

MRS LEE. Nicely done, Barry. OK, after five tosses, each of you shifts one position. Shift from tosser to catcher to passer to observer to tosser. All right, class, do you have any questions about this drill and your role as an observer? (Sees no hands raised.) When I say begin, please form a group of four, find a space on the court and decide who starts where. I will be moving around the class to talk to the observer in each group. Ready, begin.

While the students are engaged in the drill, the teacher lets the observers know how they are doing in their role.

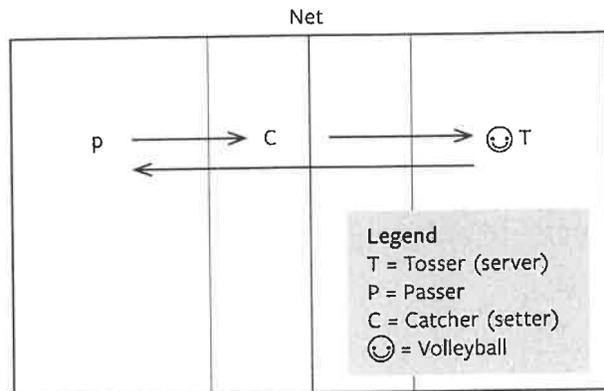


FIGURE 1. Groups of three practising the forearm pass (serve receive). Three or four groups of three can practise on one court at the same time.

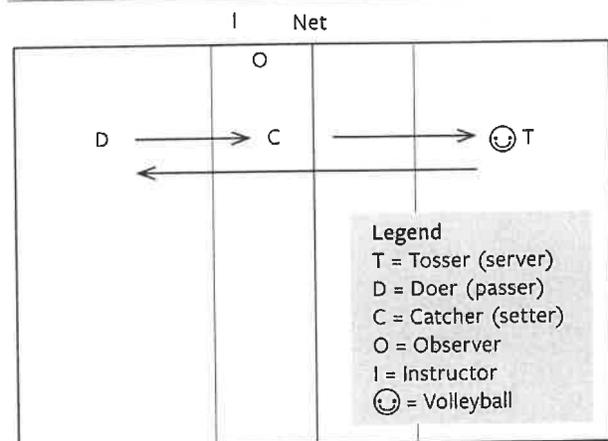


FIGURE 2. Groups of four practising the forearm pass (serve receive) within the structure of style C. Three groups of four can practise on one court at the same time.

performance indirectly (that is, through the observer) will take time for the teacher to perfect.

Practical Suggestions for Implementing Style C

What Are the Strengths of Style C?

Style C is an instructional framework that serves to develop social interaction between learners and to encourage movers to analyze skill performance. While giving and receiving feedback, students learn the skills required to interact more appropriately with others, which helps them feel more successful (Dyson 2001). Observing, analyzing and drawing conclusions about how they and others are moving help learners better understand the processes of learning a physical task (Krathwohl 2002; McBride 1992). Receiving feedback consistently after each movement trial results in more correct responses in time (Siedentop 1991). More globally, allowing students to have more of a say in the learning process (that is, giving them greater opportunity to make decisions) supports higher levels of student engagement in physical education (Curran and Standage 2017; Dyson 2001, 2002).

How Should Students Be Paired in Style C?

Research indicates that the amount of specific feedback observers direct toward the doer in the reciprocal style of teaching is greatest when learners are paired with friends. In a study by Byra and Marks (1993), the elementary-aged participants felt more comfortable receiving feedback from an observer who was a friend than from one who was not. Given these findings, physical education teachers should permit students to select their own partners when employing style C, unless other contingencies are evident (for example, social behaviour issues).

When Introducing Style C to Students, What Should Be the Focus of the Interaction Between the Observer and the Doer?

Given that a primary goal of style C is to increase the amount of skill feedback given to students, it is critical to first develop an environment in which students feel comfortable giving and receiving feedback. To attain this goal, have the observer first look for and comment on the skill elements that the doer is performing well rather than the skill elements that need to be corrected. This will

increase the likelihood of developing a positive environment for giving and receiving feedback. For the most part, students prefer to hear about what they are doing well, not what they are doing wrong. Once students are comfortable with giving and receiving specific feedback, let the observers also address the skill elements that the doers need to improve upon.

Style C is an instructional framework that serves to develop social interaction between learners and to encourage movers to analyze skill performance.

Style D—Self-Check

In style D—self-check—learners perform a task and subsequently check their own performance. After completing a trial or a series of trials of the task, learners engage in the cognitive behaviours specific to self-checking performance, with the help of a task sheet (see Appendix B). The cognitive behaviours associated with self-checking in style D are the same as those used by the observer when observing the doer's performance in style C (that is, know the critical skill cues of the task, compare and contrast performance with the known cues, and draw conclusions about the performance). According to Mosston and Ashworth (2008), students develop kinesthetic awareness in their motor performance by individually practising and checking for performance errors.

In style D, the teacher is responsible for observing learners as they perform a task and listening to them verbalize how they feel they performed. The teacher's interaction with learners revolves around asking them about their performance rather than telling them about their performance. As in style C, learners self-check their performance based on the a priori movement criteria (task sheet) provided by the teacher. Student independence moves to another level in style D, as learners no longer depend on an outside source for performance-related feedback.

To maintain the integrity of style D, the teacher must draw from students their thoughts about their own performance. This is not the norm for a physical educator; the norm is to tell learners how they performed, as in styles A and B. The ability to address students' skill performance indirectly (through questioning) takes time to perfect.

Style D Scenario

Marcel, a Grade 3 student, is using a paddle to strike a softball-sized foam ball against the wall from a bounce. According to the task sheet, he is to strike the ball five times while thinking about the four critical skill cues: side to target, paddle back, eyes on ball and step with the nondominant foot (see Appendix B).

Mr Corbett, the teacher, observes one set of Marcel's trials, each of which results in the ball being hit to Marcel's right.

When Mr Corbett asks Marcel how he is doing, Marcel sadly states that he can't seem to hit the ball directly ahead of him, and he is not quite sure why this is happening. Mr Corbett asks him to read the four critical skill cues from the task sheet. He does so.

MR CORBETT. Do you think you're performing the skill cues as described?

MARCEL, *while doing the task again*. My paddle is back, I am watching the ball, I'm stepping, but it goes to the right.

MR CORBETT. Take a look at your starting position.

MARCEL, *tries again and contacts the ball straight to the wall*. Yes, that's it! I was facing the target rather than having my side to it.

MR CORBETT. Marcel, you're beginning to feel your performance and recognize what you are and are not doing. Excellent!

Mr Corbett then moves on to observe Josh.

What Information Is Included on a Task Sheet, and How Can Students and the Teacher Use This Information?

A task sheet informs both students and the teacher. The task sheet can be given to each student as a handout or made into a large wall poster for a group of students or the whole class to read, and it can be used once or multiple times. It can be used to inform students about the task, the critical skill cues of the task and how to analyze performance (a peer's in style C and their own in style D), as well as to provide examples of potential feedback statements (style C). It can also serve as a place to record student performance (a peer's or their own). These records of performance are a good example of formative assessment. Frequently, students' questions can be answered by simply referring them back to the task sheet. Task sheets are useful when teaching in styles C, D and E.

Style E—Inclusion

The purpose of style E—inclusion—is to include all learners at their appropriate levels of participation and skill. More specifically, style E allows for individual skill differences between learners.

What sets style E apart from the other teaching styles in the reproduction cluster is how students make decisions with regard to self-selecting the level of difficulty at which they practise a task and self-assessing their own task performance. In styles A–D, all students practise a task at a teacher-prescribed level of difficulty; no planned attempt to accommodate individual differences in students' skill abilities is made. In style E, the teacher formally presents to students different levels of task difficulty, from which each student selects a level. Students are given legitimate options for practising a task, options based on factors or variables that make the task more difficult or less difficult. In addition to self-selecting the level of task difficulty, students in style E assess their own task performance, with the help of a task sheet and guidance from the teacher.

The primary goal of style E is to challenge and motivate students to engage in tasks at an appropriate skill level (Byra and Jenkins 1998; Chatoupis and Emmanuel 2003). Individualizing instruction to permit greater student success is the underlying premise of style E (Mosston and Ashworth 2008).

Practical Suggestions for Implementing Style D

What Is the Value of Having Students Assess Their Own Skill Performance?

Research indicates that self-assessment strategies facilitate skill and cognitive learning (Beckett 1991; Jenkins and Byra 1997). When teachers guide students to self-check their performance, they become thinking movers (Pill 2018). In turn, this leads them to become independent learners, which is something most physical educators strive to develop in their students. Students who know how to self-assess will feel more confident in pursuing new and diverse movement experiences outside of the school physical education setting. Style D fits well with general outcome D in Alberta's physical education program of studies, specifically through the elements of goal setting and personal challenge and of active living in the community (Alberta Learning 2000).

Style E Scenario

Last class, Ms Berry's Grade 3 students practised throwing a ball underhanded as part of a unit on throwing, catching and striking. She taught using style E. In today's class, she will introduce striking with a bat, once again in style E. She calls style E "being included."

First, she highlights, through demonstration and explanation, the five critical skill cues of focus for striking with a bat (see Appendix C and Figure 3). Then, using a foam ball (the size of a tennis ball, a softball or a handball), she demonstrates three levels of task difficulty:

- Striking a ball off a batting tee
- Striking a ball that is underhand tossed by a partner from the side (5 feet away)
- Striking a ball that is underhand tossed by a partner from in front (15 feet away)



Performance Cues for Batting

1. Bat back (over shoulder, sticks up like a toothpick)
2. Eyes on ball (eyes on the ball all the time)
3. Side to target (turn your side to the target)
4. Level swing (swing flat as a pancake)
5. Rotate and shift (roll over shoelaces of back foot)

FIGURE 3. Example wall poster to be posted on the gymnasium wall (performance cues for batting).

See Appendix C and Figure 4

Ms Berry explains to students that after each set of five trials, they must self-check their performance against the critical cues posted on the wall chart and decide whether to increase, retain or decrease the difficulty level of the task in a subsequent set of five trials.

After checking students' understanding of the task, she tells them that she calls this style of teaching "being included." She then instructs students to choose a partner, who will serve in a supporting role (retrieving the ball that is hit from a batting tee, or tossing the ball underhanded to the batter and then retrieving the ball), and begin striking the ball at the initial level of task difficulty they have chosen.

Levels of Task Difficulty for Batting

Task (Variable 1)

Level	Task description	Right-handed	Left-handed
1	Bat ball from batting tee	BATTER → ▲ TEE	▲ TEE BATTER →
2	Bat underhand-tossed ball from side (tosser kneeling 5 feet from batter)	BATTER → ■ TOSSE	TOSSE BATTER →
3	Bat underhand-tossed ball from front (tosser standing 15 feet from batter)	BATTER → ■ ← TOSSE	■ ← TOSSE BATTER →

Size of Ball (Variable 2)

Level	Size
1	Large  8-inch foam ball (handball size)
2	Medium  5-inch foam ball (softball size)
3	Small  3-inch foam ball (tennis ball size)

FIGURE 4. Example wall poster to be posted on the gymnasium wall (levels of task difficulty for batting).

While her students are engaged in practice, Ms Berry observes their performance and provides individual feedback by asking them specific questions about the level of difficulty they have chosen and the critical skill cues they are and are not performing. This helps her determine whether they are self-checking their performance accurately.

After the students have completed three to five sets of five trials, she gathers them in and provides some general positive feedback about the choices they made with regard to the level of task difficulty, as well as about the accuracy of their self-checking performance. During the last two minutes of the lesson, she asks them to tell her about this teaching style called "being included" in order to examine their understanding of style E.

Practical Suggestions for Implementing Style E

What Is the Primary Value of Style E, and What Impact Does It Have on Student Engagement?

In style E, the teacher accepts individual ability differences between learners. Providing students with options to make a task more difficult or less difficult is what individualized instruction is all about. Allowing students to make these decisions empowers them. When students are empowered, they perceive the practice environment as being much more meaningful, which positively influences their level of engagement in the activity (Curran and Standage 2017; Kirby et al 2015).

The level of student decision making is significant in style E, and this decision making is closely associated with students developing responsible personal and social behaviours. In style E, differences between learners (for example, ability level or prior experience) are emphasized, and these differences are to be welcomed and respected by all.

What Teacher Knowledge Is of Importance When Implementing a Style E Episode?

A well-designed style E episode takes time and much thought to plan and implement. In short, the teacher needs to be knowledgeable about

- the skill levels of the students in relation to the motor task to be presented,
- the factors or variables that can be manipulated to make the task less or more difficult,
- how to guide students to make appropriate decisions about the level of task difficulty and
- how to guide students to assess their own task performance.

In style E, it is paramount that the teacher has a wealth of knowledge about the content being delivered and the students being taught.

What Can the Teacher Do to Increase the Chances of a Style E Episode Being Successful?

When first introducing style E, the teacher should limit student decision making about the level of difficulty at which to practise. To do so, the teacher can manipulate only one factor (for example, allowing students to choose between batting the ball off the tee, striking a ball tossed from the side or striking a ball pitched from in front— but providing only one size of ball).

After students have some experience in selecting the level of difficulty, only then should the teacher introduce them to the process (decision making) of self-assessing performance. After all, assessing students' skill performance is second nature to the teacher, and being assessed by the teacher is what students typically expect.

Style E is complex! Break it down for your students. Make it palatable to them.

Styles C, D and E and Alberta's K-12 Physical Education Learning Outcomes

The cognitive learning domain, in addition to the psychomotor learning domain, is of primary emphasis in styles C, D and E. Time in the instructional process is specifically devoted to having students assess either a partner's performance (style C) or their own performance (styles D and E). While students are physically engaged, the cognitive operations in which they engage include knowing the critical skill cues of the task, comparing and contrasting performance with the known cues, and drawing conclusions about performance (cues that were performed well and cues that need to be addressed in subsequent trials).

The aim of K-12 physical education in Alberta is to "enable individuals to develop the knowledge, skills and attitudes necessary to lead an active, healthy lifestyle" (Alberta Learning 2000, 5). In terms of the general outcomes found in the K-12 physical education program of studies, styles C, D and E can be used to help students "acquire skills through a variety of developmentally appropriate movement activities" (p 5) in typical and alternative learning environments (general outcome A) and to help students foster responsibility to lead an active lifestyle, specifically through effort and through goal setting and personal challenge (general outcome D).

Style C is also intimately connected to general outcome C: "Students will interact positively with others" (Alberta Learning 2000, 5). Communication, leadership and teamwork can all be developed in the framework of the observer and the doer in style C. In essence, in style C, learners are highly engaged in the cognitive and affective educational learning domains while actively performing physical activity (Krathwohl 2002).

With students making decisions about the level of difficulty of a task, style E is also especially well connected to effort and personal challenge, two elements of general outcome D.

Well-designed styles C, D and E episodes can meet multiple outcomes associated with the psychomotor, cognitive and affective educational learning domains.

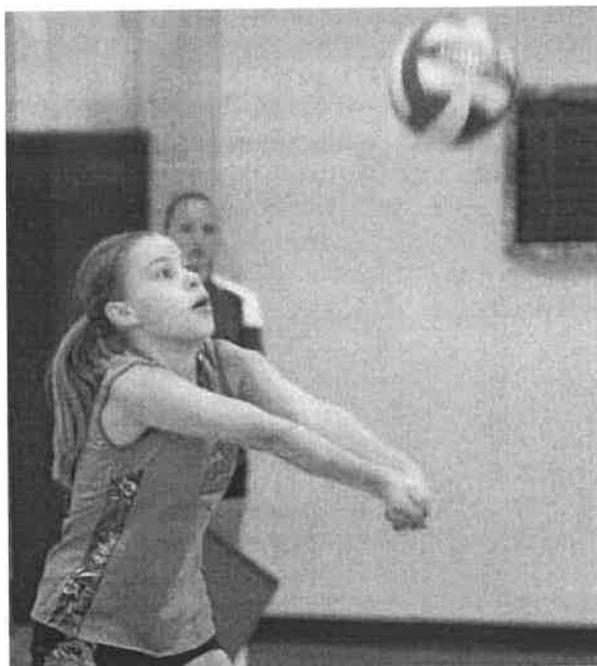
Summary

In this article, I have introduced you to three Spectrum styles—C, D and E—in some detail, through scenarios and practical suggestions for implementation. In addition, I have described how Alberta’s general outcomes for K–12 physical education (Alberta Learning 2000) align with these three teaching styles. Styles C, D and E are what I call comprehensive teaching styles. Comprehensive teaching styles meet multiple objectives and outcomes from multiple educational learning domains simultaneously. As with the first article (Byra 2018), I hope that I have provided you with enough information to tempt you to incorporate some styles C, D and E episodes in your daily teaching of physical education.

When implementing a new teaching style that is unfamiliar to your students, remember the phrase “repetition, repetition, repetition.” Your level of success with any one of these three relatively complex teaching styles will likely be marginal during the first few attempts, because it will be new to you and to your students; with additional practice, however, your rate of successfully implementing the new teaching style will increase dramatically. Joyce, Weil and Showers (1992) report that teachers continue to feel a certain level of discomfort with a new teaching strategy until they have tried it 10 or more times. Just as it takes a Grade 3 student many repetitions to execute the overhand throw at the utilization level of skill proficiency (Graham, Holt/Hale and Parker 2013), it will take you (and your students) repeated episodes of using a given teaching style to reach the level of success you want. Keep this caveat in mind!

Stay tuned for “Teaching Spectrum-Style—Part 3” in the next issue of *Runner*. I will present style F (guided discovery), style G (convergent discovery) and style H (divergent discovery), from Mosston and Ashworth’s (2008) production cluster of teaching styles. The essence of the production cluster of teaching styles is discovery learning. Cognitive dissonance in learners induces the process of inquiry, which leads to discovery.

Appendix A: Style C Task Sheet or Wall Poster for Forearm Pass (Serve Receive) in Volleyball



Doer

1. Pass the ball (using the forearm pass) to the catcher (who stands in the setting position at the net).
2. After five trials, rotate positions (from doer to observer to tosser to catcher).
3. Rotate through all positions twice.

Observer

1. Using the task sheet, offer feedback to the doer after each trial (positive specific feedback followed by corrective specific feedback).

Critical Skill Elements for Forearm Pass

- Ready position (square to target, wide base, knees bent, sitting position)
- Under the ball (knees bent, sitting position, ball played between knees)
- Thumbs together and parallel on contact
- Elbows locked (not praying) on contact
- Weight shifts toward the catcher following contact

Examples of Specific Feedback Statements

- “I like how you have your thumbs together!” (positive specific)
- “Lock your elbows before contact.” (corrective specific)
- “You are square to the target. Awesome!” (positive specific)
- “Be sure to shift your body weight toward the target after contact.” (corrective specific)
- “Nice job playing the ball between your knees!” (positive specific)

Steps in Analyzing Performance and Giving Feedback

1. Know the critical skill elements.
2. Observe the doer’s performance.
3. Compare and contrast the doer’s performance with the critical skill elements.
4. Draw a conclusion about the accuracy of the doer’s performance.
5. Communicate this result to the doer.

Appendix B: Style D Task Sheet or Wall Poster for Striking with a Paddle

Critical Skill Elements for Striking with a Paddle

- Side to target
- Paddle back
- Eyes on ball
- Step with the nondominant foot

Task 1

1. While positioned 10 feet from the wall, complete three sets of five trials of the forehand stroke from a bounced ball.
2. After completing each set of five trials, circle C (correct) or NW (needs work) for each critical skill cue.
3. Now complete two more sets of five trials.

Critical skill cues	Set 1	Set 2	Set 3	Set 4	Set 5
Side to target	C NW	C NW	C NW	C NW	C NW
Paddle back	C NW	C NW	C NW	C NW	C NW
Eyes on ball	C NW	C NW	C NW	C NW	C NW
Step with nondominant foot	C NW	C NW	C NW	C NW	C NW

Task 2

1. With a partner on court, have your partner toss the ball over the net, let the ball bounce and then hit it back to your partner using the forehand stroke.
2. After completing a set of five trials, circle C (correct) or NW (needs work) for each critical skill cue.
3. Now complete two more sets of five trials.
4. After completing three sets of five trials, switch roles with your partner.

Critical skill cues	Set 1	Set 2	Set 3	Set 4	Set 5
Side to target	C NW	C NW	C NW	C NW	C NW
Paddle back	C NW	C NW	C NW	C NW	C NW
Eyes on ball	C NW	C NW	C NW	C NW	C NW
Step with nondominant foot	C NW	C NW	C NW	C NW	C NW

Appendix C: Style E Task Sheet or Wall Poster for Batting

Levels of Difficulty

Task

Level 1	Bat a ball from a tee
Level 2	Bat an underhand-tossed ball from the side
Level 3	Bat an underhand-tossed ball from in front

Size of Ball

Level 1	Large
Level 2	Medium
Level 3	Small

Directions

1. Select a task and a ball size for your first set of five trials.
2. Write the level of the task and the ball size in the appropriate box.
3. Write the number of successful hits you think you will make out of five trials (prediction).
4. Now complete five trials. Record the number of successful attempts out of five (actual).
5. After completing the first set of five trials, choose the task level and ball size you want to use to complete a second set of five trials. Repeat steps 2, 3 and 4.
6. After completing the second set of five trials, choose the task level and ball size you want to use to complete a third set of five trials. Repeat steps 2, 3 and 4.

Set actual	Task (level)	Ball (level)	Prediction	Actual
1			—/5	—/5
2			—/5	—/5
3			—/5	—/5

Performance Cues for Batting

Adapted from Graham, Holt/Hale and Parker (2013).

- Bat back (bring the bat way back over your shoulder so it sticks up like a toothpick)
- Eyes on ball (keep your eyes on the ball all the time)
- Side to target (turn your side to the target or field)
- Level swing (extend your arms to swing flat as a pancake)
- Rotate and shift (roll over the shoelaces of your back foot)

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