



## Using Pedagogical Principles in Net/Wall Games to Enhance Teaching Effectiveness

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Over the past few decades, an increased emphasis on active living has been embedded within school physical education. Many physical education and health curricula have been developed to foster active, healthy lifestyles through various learning outcomes and objectives. Although such a goal may be desired and valued by our society, ways to achieve this goal are less understood. If elementary physical education is to assist children in developing skills and understanding that will serve as the foundation for future activities, then educators at all levels need to develop ways to foster these skills and understanding across numerous types of activities. Developing such skills and understanding is crucial to instill a positive sense of competence and desire to continue participation in many different types of games.

The area of Teaching Games for Understanding (TGfU) provides a framework to help achieve this goal. One of the major benefits linked to using a TGfU approach is the notion that tactical understanding can be transferred between games within the same games category (Dodds, Griffin, & Placek, 2001; Mitchell & Oslin, 1999). In other words, facilitating student understanding of game structure (i.e., skills, rules, and tactics) can allow students an opportunity to be better game players across various traditional and nontraditional games. To successfully achieve this learning objective of tactical transfer, instructors must make a connection between what they teach (i.e., the content of their lessons) and the various methods used to effectively deliver game lessons (i.e., games pedagogy).

Four pedagogical principles have been developed within the TGfU framework to successfully create modified games that make the connection between games content and games pedagogy. These include sampling, representation, exaggeration, and tactical complexity (Holt, Streat, & Garcia, 2002; Morris & Stiehl, 1999). *Sampling* refers to instructors using different game examples from the same category and providing students with an understanding of similar tactical problems and solutions. *Game representation* refers to creating developmentally appropriate game-like scenarios that represent how a particular skill or tactical solution is used within a game. The third pedagogical principle of exaggeration requires instructors to choose a particular focus for an activity (e.g., maintaining a rally) based on game structure and creating a developmentally appropriate scenario that exaggerates the concept that is chosen. The final pedagogical principle of *tactical complexity* is based upon the premise that there is a developmental progression of tactical solutions that include on and off the ball skills and movements.

Based on Anderson's (in press) notion of instructional intelligence, the pedagogical principles can be used to help build instructional opportunities that provide teachers with the tools to "bring out" what students learn from participating in games.

Encouraging students' insights through reflective questioning enables teachers and students to examine more deeply the task/skill demands and the tactical insights they are generating through experience. By paying attention to the meanings and understandings the learners derive from their game experiences, teachers are able to not only structure developmentally appropriate game experiences but also find out whether or not their instruction was effective. To illustrate how these pedagogical practices might work, various practical net/wall activities that follow a developmental progression and incorporate each of the four principles are provided. These are done with the intention of laying the foundation for understanding various net/wall games.

### Using the Pedagogical Principles in Net/Wall Games

For a game to be considered a net/wall game, players try to "... propel an object into space so an opponent is unable to make a return" (Griffin, Mitchell, & Oslin, 1997, p. 9). Based on this primary rule, the focus for elementary students should be to acquire the skills and knowledge for how to achieve this objective for a variety of net/wall games. Previous TGfU resources (e.g., Griffin, 1998; Griffin et al., 1997; Lawton & Werner, 1989) have done an excellent job of identifying tactical problems and solutions for specific formal net/wall games (e.g., tennis, badminton, volleyball). The approach adopted for this article is to identify generic tactical problems and solutions within the net/wall category and use them as a foundation for various net/wall games. It is hypothesized that if elementary school-aged children can understand and execute generic tactics and skills, then they will be able to transfer this understanding and ability when they start to focus on more formal net/wall games at advanced grades. This foundation will serve to enhance game understanding and performance in net/wall games that are traditionally taught (e.g., tennis, badminton, volleyball) and open the door to net/wall games that have not been traditionally taught (e.g., sepak tawkray, Paralympic volleyball, jai alai) in North American schools.

Table 1 provides examples of various tactical problems and solutions that are generic enough to be applied to various net/wall games. The tactical problems are sequenced from least complex (level 1) to most complex (level 5) in terms of their difficulty and developmental sequence in learning skills and tactics. Each tactical problem builds upon each other to further enhance game performance and understanding in net/wall games. The tactical solutions that are provided are generic ways to solve the tactical problems so that learning can be transferred to as many net/wall games as possible.

**Table 1—Generic Tactical Problems and Solutions Associated With Net/Wall Games**

Tactical Complexity Levels	Generic Tactical Problem	Potential Generic Tactical Solutions
1	Consistency (offensive and defensive)	<ul style="list-style-type: none"> <li>positioning</li> <li>footwork</li> <li>skill mechanics</li> <li>accuracy</li> </ul>
2	Setting up for attack (offensive)	<ul style="list-style-type: none"> <li>shot placement to create space                             <ul style="list-style-type: none"> <li>corners</li> <li>sides</li> <li>front/ back</li> </ul> </li> <li>communication (doubles +)</li> </ul>
3	Defend Space (defensive)	<ul style="list-style-type: none"> <li>recovery position</li> <li>formations (doubles +)</li> </ul>
4	Win the Point (offensive)	<ul style="list-style-type: none"> <li>shot selection                             <ul style="list-style-type: none"> <li>spin</li> <li>force</li> </ul> </li> <li>shot location                             <ul style="list-style-type: none"> <li>at open space</li> <li>at person</li> <li>between partners</li> </ul> </li> <li>body fakes</li> <li>serves</li> <li>attacking the shot</li> </ul>
5	Defending against attack (defensive)	<ul style="list-style-type: none"> <li>shot return                             <ul style="list-style-type: none"> <li>block</li> <li>dig</li> <li>close to net</li> </ul> </li> <li>formations (doubles +)</li> <li>cover (doubles +)</li> </ul>

(Compiled from Griffin, 1998; Griffin et al., 1997; Hopper & Bell, 2001; Mitchell, 2001.)

The following activities provide examples of how instructors can utilize the four pedagogical principles to develop a learning environment that builds a foundation to enhance game performance and competence for various net/wall games. The ultimate goal of using these principles is to develop independent learners who are "... able to monitor situations and tasks and respond accordingly" (Anderson, 2001, p. 31). Modifications that increase task difficulty are also presented to assist instructors in structuring developmental progressions for activities that reflect various net/wall games. For example, game modifications that require participants to strike a ball with a hand after a bounce are introduced before requiring participants to strike a ball with a racquet or with a hand without a bounce. Reflection questions that cause participants to reflect on the key elements of the game (e.g., important skills used, tactical solutions to various net/wall games, ways to make the game more challenging) can then be used following participation in these games to develop an insight bank (Anderson, in press). This insight bank is a list of responses generated by the participants that can then be used to gauge student learning and understanding, generate further activities that represent student responses, and encourage new and creative responses of which students feel a sense of ownership.

### Game 1a: Keep It Goin'

**Tactical Problem:** Consistency (tactical complexity level 1)

**Equipment:** 1 ball / pair (use ball appropriate for ability level)

### Set-Up (see Figure 1)

- Create a 2 meter neutral zone using cones to represent a "net" or use a badminton net that is set at a low level so the bottom of the net touches the ground.
- Use poly spots to create a grid to play within.
- The size of the grid should be appropriate for the age and ability level of the group.

### Purpose

To introduce students to net/wall games and to provide them with an opportunity to generate an insight bank of potential tactical solutions commonly used in net/wall games.

### How To Play

Play 1 vs. 1 cooperatively.

- Students stand on opposite sides of the net.
- Players start by bouncing the ball on their own side so that their partner can catch the ball in the air after it has crossed the neutral zone or net.
- Players must bounce the ball from where they caught it.
- Partners keep track of how many consecutive catches they can make to each other without letting the ball hit the ground after a bounce within a 2 minute time frame.
- Play several times and try to beat previous score.

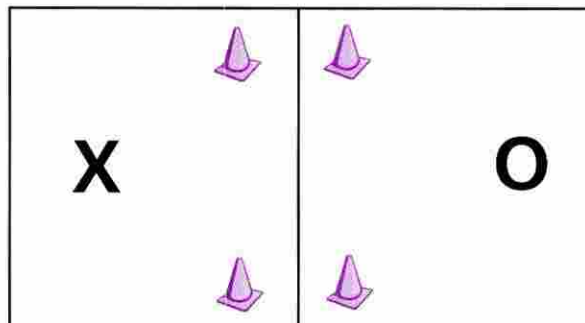
### Reflection Questions

1. How much force do you need so the ball goes high in the air to allow time for partner to catch it (e.g., just enough so the ball goes high in the air to give partner time to catch it)?
2. Where is a good spot to place the ball in court so your partner can accurately catch it (e.g., middle of the court; directly to the person)?

### Modifications to Increase Task Complexity and Encourage Sampling

Modified equipment such as beachballs or balloons can increase success for the following modifications:

- Strike ball over the net with open hand (allow one bounce per side and self-hit if necessary).
- Strike ball over the net with racquet (one bounce before striking and self-hit if necessary).
- Strike ball over the net with feet (one bounce before striking and self-hit if necessary).
- Strike ball with hands or arms (no bounce).
- Strike ball without using hands (no bounce).
- Play against a wall.



**Figure 1—Set-up for activity 1a and 1b.**

**Skill Development:** After each change in “skill,” provide informative feedback and/or ask participants how to effectively execute the skill (e.g., flat hand when hitting the ball with hand; handshake grip when holding the racquet).

This initial activity introduces elementary students to net/wall games through the use of all four pedagogical principles. Sampling is used through the various types of modifications that are encouraged and reflect various types of net/wall games such as handball (open hand), pickleball (racquet), volleyball (arms), and sepak tawkray (feet). The game is also designed to represent how a net/wall game is played (i.e., alternating shots between players either over a net or against a wall). The tactical problem of consistency is exaggerated to demonstrate and lay the foundation for more complex tactical problems associated with net/wall games. Finally, this game uses the least complex tactical problem and thus addresses the importance of beginning with a low level of tactical complexity. By beginning with the least complex tactical problem first, participants learn about the primary rules of net/wall games and the importance of being able to consistently return an object over the net without having to worry about their partner trying to win a point. As a result, instructors can engage their students in a discussion about ways they were successful in this game. For example, instructors can facilitate a discussion about how the various tactical solutions associated with maintaining a rally are consistent among the various net/wall games that were sampled. Instructors can also facilitate a discussion around the importance of both fundamental skills (e.g., striking with racquet) and sport-specific skills (e.g., volleyball bump) to successfully implement the various tactical solutions. This will help enhance student understanding of the potential tactical solutions and the relevance and importance of improving skills across various net/wall games.



## Game 1b: Put it Away

The following game builds upon the tactical problem of consistency by raising awareness of more complex tactical problems and solutions used in competitive net/wall games. This activity uses the pedagogical principles to address and identify tactical solutions associated with placing the object into the opponent’s area of play so he or she cannot return it.

### How to Play

- Set-up same as 1a (see Figure 1) but now play competitively.
- Score a point if the ball lands in your partner’s court and he/she cannot return it.
- Have to underhand throw the ball over the net from where it was caught.
- Player who scored the point gets to serve.
- Play rally-point (score on every serve).

### Modifications to Increase Task Complexity and Encourage Sampling

- Play using the list of modifications from Game 1a.
- Play doubles.
- Play against a wall (ball has to hit the wall from the return and then has to land in bounds and not returned to score a point).

Like the initial game, this game samples from a number of different net/wall games. It is also representative of a net/wall game in the sense that the objective is to try to place the object in an area of the court so that the opponent cannot return it. It also

builds upon the previous activity in terms of tactical complexity due to its competitive nature and the lack of awareness from a defensive perspective of where the opponent will place the ball. The complexity of the game is further enhanced through the use of the doubles modification whereby players now have to work with a partner to try to place the ball into an area that is now covered by more people. Finally, this activity provides the instructor with an opportunity to raise awareness of various tactical solutions that could be used to be successful in net/wall games. This will then allow the teacher and/or students to create other game scenarios (such as Game 2 in the next section) that exaggerate the types of tactical solutions that were generated as a result of creating an insight bank through reflective discussions that emerge after participation in the game.

(Note: Games 1a and 1b were developed based on ideas presented by Hopper & Bell, 2001 and Mitchell, 2001)

### Reflective Questions

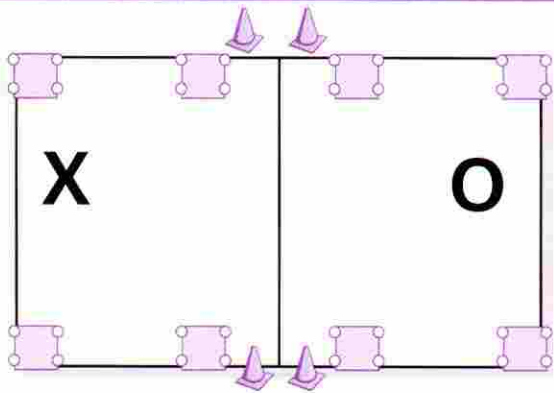
Teachers can enhance student learning of future tactical problems and solutions by asking reflective questions:

1. How did you try to get the object to land inside your opponent’s square (e.g., hit it softly, put a spin on the ball so it went away, drop shot just over the net)?
2. What did you do to try and prevent your opponent from scoring (e.g., covered space by getting back into the middle of the court)?
3. What happened to the game when you added a second person and played doubles (e.g., game became more complex because had to coordinate with partner and less space on opponents’ side)?
4. What happened to the game when you played against the wall (e.g., tried to place the ball into similar areas on the court like the sides and the front and back to make it difficult to return)?
5. How can you make the game more challenging (make the area smaller, restrict movement)?

Although the teacher can expect answers from the students that are consistent with the tactical solutions presented in Table 1, he or she should also be receptive to new and creative ideas that do not violate the primary rule of net/wall games. Games can then be created that exaggerate the tactical solutions generated by the students. Game 2 is an example of a game that could be used to exaggerate the importance of placing the ball into dangerous places on the court: the corners.

## Game 2: Corners

In game 1b, one of the tactical solutions that participants may realize is that if they can place the ball into one of the four corners, it would be much more difficult for his or her opponent to return the shot. Therefore, the following activity exaggerates the tactical solution of shot placement associated with setting up for an attack by rewarding the players for being able to place the ball into one of the four corners on their opponent’s court. It also demonstrates how this tactical solution is important in a variety of net/wall activities by again sampling from various different net/wall skills. This game represents what occurs in a net/wall game by incorporating some of the common playing and preplaying rules. It builds upon the previous activity in terms of tactical complexity with the learner moving from being able to consistently return a shot and being able to create or utilize space on the court to being able to put the ball into vulnerable spots to make it difficult to return.



**Figure 2**—Set-up for activity 2.

**Tactical Problem:** Setting up Attack (tactical complexity level 2)

**Equipment:** 1 ball / pair (use ball appropriate for ability level)

### Set-Up (see Figure 2)

- Use the same size grid and net as Figure 1.
- Place four poly spots to create a small square in each corner on both sides of the net (shaded area in Figure 2).

### How to Play

Start off playing 1 vs. 1 competitively.

- Choose a ball that both players feel comfortable throwing and catching.
- Use poly spots to create a square in each of the four corners on both sides of the court (shaded areas).
- The only way to score a point is to underhand throw the ball so it lands in one of the four squares and is not caught in time before it hits the ground a second time.
- If the ball is thrown into opponent's court within the boundary but not inside one of the four squares and is not returned, the team gains or retains service, but no point is awarded.
- Thrower must throw underhand from where the ball was caught.

### Reflection Questions

1. Can you use your body to try to fake out opponent (e.g., head fakes, shoulder fakes)?
2. Can you get your opponent out of position to create space on their side (e.g., if throw ball to the front of the court, have now created space at the back of the court)?

### Modifications to Increase Task Complexity and Encourage Sampling

- Have to throw ball as soon as it is caught.
- Play doubles.
- Strike ball with hands instead of throw and catch (no smashes).
- Strike ball with paddle and racquet.
- Use a scoop to throw and catch the ball.
- Play against a wall . . . students can choose their skill-method to play the game (e.g., hand, scoop, racquet).

### Reflective Questions

This activity can not only enhance understanding of vulnerable spots on a net/wall court and how to create space by trying to get an opponent out of position, it can also help to raise tactical awareness and the development of a richer insight bank consisting of more complex tactical problems and solutions

(e.g., how to defend space in singles and doubles) through guided questioning:

1. What parts of the court became more vulnerable for attack when playing doubles (e.g., middle)?
2. What formation was most effective for your team to cover the court when playing doubles (e.g., front and back or side-to-side)?
3. Once you get better at this activity, how could you make it more challenging (e.g., make the corners smaller, add a spin to the ball, etc.)?
4. What are the similarities between net games and wall games when trying to place the ball into dangerous areas (e.g., front and back corners are dangerous like net games)?

## Conclusion

The series of progressive activities that are presented in this article are intended to demonstrate to teachers how to incorporate the four pedagogical principles to develop activities that enhance student learning within a TGfU framework. These principles enable instructors to generate activities that reflect the overall structure of the net/wall games category. Participant motivation to engage in these activities can also be enhanced by providing students with an opportunity to help generate the solutions to tactical problems that exist within net/wall games and have input into game creation. The principles provide a framework of tactical solutions that range from simple to complex (i.e., tactical complexity) and promote understanding of these solutions through creating games that exaggerate their importance and relevance in game settings. By using game-like scenarios that represent what goes on in a game and by sampling from a number of net/wall games, student understanding of various net/wall games can be enhanced. Teachers can then use reflective questions following an activity to not only check for understanding of game concepts and provide relevance for future activities, but to also include students in the generation of challenging and progressive activities. Put together, the four pedagogical principles provide a mechanism for linking the content of net/wall games to effective games pedagogy such that children develop the necessary skills, understanding, tools, and motivation to take part in various games throughout their lifetime.

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