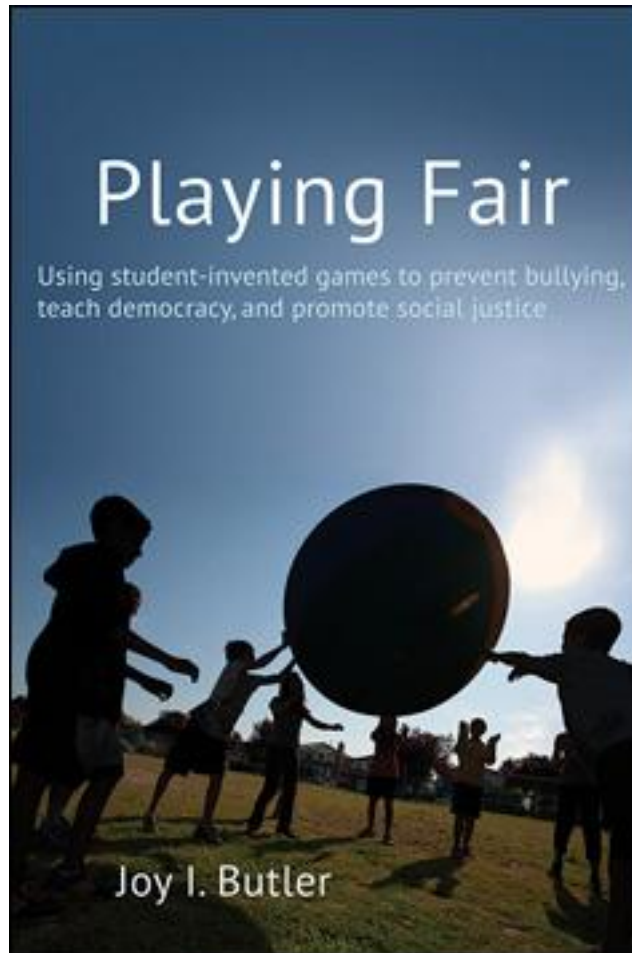**Chapter 12 - Hopper, T. (2016). Net and wall games: Pickleball. In J. Butler (Ed.),** *Playing Fair* **(pp. 179–198). Champaign, IL: Human Kinetics.**

Chapter 12

Net/Wall Category

Inventing Pickleball game as the foundation for a Net unit

Timothy Hopper

Inventing Pickleball

   On the small island in the Puget Sound in 1965 the Pritchard and Bell families needed something to amuse their children through the long summer holidays. They had an asphalt badminton court and badminton racquets, but no shuttlecocks, just three-inch plastic ball. So the two dads started improvising. What follows shows just what can happen when you start inventing games!

   The first challenge was their dog, Pickles, who kept running off with the ball (hence the game's name!). The second was that the kids found it hard to hit the ball with the lightweight badminton rackets. Off went the dads to the workshop, where they knocked up wooden rackets- something like large table-tennis paddles. As the children and the dads played with these, they worked much better, but now they needed more time to adjust to the flight of a solidly hit ball, so they agreed to allow the ball to bounce once enabling longer and more engaging rallies.

   After a while, they realized the badminton net was too high, lowering it from five to three feet, hoping to speed the game up. They soon realized that if they ran into the net and volleyed, the point was over too quickly. So they added a new rule that forbade volleying in the badminton service box (see Figure 1). This worked well, but then they realize that the serving player gained an advantage by serving the ball, then running to the service line to volley the return - the strategy of serve and volley became way too effective. The families therefore concocted the "double bounce rule": "a ball served across court had to bounce in the receiver's area beyond the service-line and then the returned shot had to bounce somewhere in the server's court before a volley could be played." This new rule opened the game up to longer rallies with points being shaped by the players as they responded to the opponent's deep, short, angled, volleyed and lobbed shots.

From this recursive process of adjusting equipment, rules and areas of play the foundation of the modern day Pickleball was invented.
(adapted from SportsKnowHow.com)

The story of how Pickleball was invented is similar to the inventing games process proposed in this book and described in chapters 7, 9, 11 and 14. Similarly, through democratic processes, these adults and children collectively explored, experimented, selected and then refined the game of Pickleball. This chapter connects this process to my experiences with Pickleball using the TGfU, (Thorpe & Bunker, 1989) and Sport Education (Siedentop, 2002) approaches. This chapter explores how purposefully designed games can progressively build skills and strategic appreciation that leads to engagement in formal competition.

Pickleball in the net/wall games category

As part of the net/wall games category, Pickleball is a divided court game where the primary intent of the game is to get the ball in the court area more often than opponents. As shown in Figure 1, the game is played on the outside lines of a badminton court with paddle bats and a whiffle ball. The ball is allowed to bounce once between hits and can be volleyed in the air (no bounce) outside of the 'non-volley zone' area. A point is conceded if the ball is: (1) missed either in the air or after bouncing once in the court, (2) hit outside of the court (side-line or base-line) before bouncing, or (3) not hit over the net. See Figure 1 for type of equipment used.
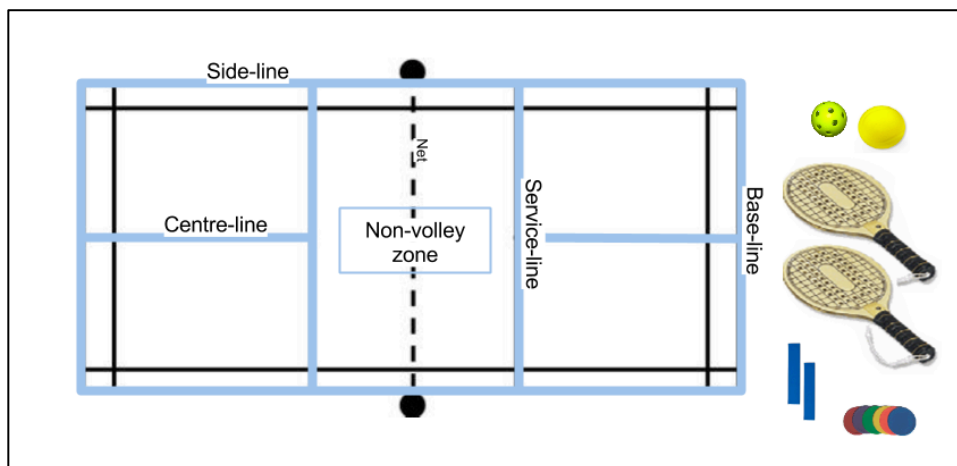

Figure 1: Labeling the Pickleball Court and Equipment

Game understanding for Pickleball games

The story of inventing Pickleball highlights key insights about net/wall games that help to engage all the players:

1. If you let the ball bounce, you have more time to play your shot.
2. The higher the ball is hit the more time you have to play your shot.

In our story, the players learned to move into the space in the front of the court to reduce the opponent's time by volleying the ball back before it bounced, hitting either to the open spaces or straight at the opponent before they had time to react. Through democratic democracy in actionlogue the players decided to add rules to reduce the volley advantage so 'no volley zone' and 'double bounce' rules were introduced. These experiments would have shown how defending and attacking a *space* is critical to all net/wall games. Once this *space* idea is grasped, players find it easier to anticipate where an opponent will send the ball. The earlier a player can anticipate where the ball will be sent (and therefore where they want to position themselves in order to return it), the more *time* they have to set-up and direct the ball to where they think it should be sent in order to gain an advantage.

Both *time* and *space* depend on the concept of *force* when striking the ball. The whiffle ball helps promote these skills because the holes in its construction reduce the ability of power shots to dominate the game. However, the ball does respond well to variations in how you use *force* to send the ball high, deep, low and short, and how you apply the bat to the ball to use spin to control the ball flight and bounce. Once players become proficient in the use of *time*, *space* and *force,* then the game becomes more of a battle of wits. Who will gamble and take a *risk* to coerce an error from an opponent, perhaps by running to the service line to force the opponent to hit to a small space to pass them? Who will avoid taking a risk, perhaps by hitting high balls and covering the space the opponent will hit to? *Risk* becomes another concept that a player can use to decide what to do based on the current situation in the game.

To help players apply the tactical concepts of *time, space, force* and *risk* to net/wall games, I have suggested the 4R model for reading the game and moving in preparation to play a shot (Hopper, 2003; Hopper, 2007). See chapter 6 (page 8) for the 4R's sequence.

To use the 4R model, the novice player needs to learn how to adapt to the constraints of the game in order to play with proficiency and intelligence. I use the set of strategic

principles (ways of playing) shown in Figure 2 as a focus for designing modified games to help students learn to play Pickleball.

Principle		Key Off-the-ball movements
Consistency	➔	*Base and Cover as opponent strikes ball*
Ball Placement	➔	*Adjust to send ball to spaces*
Court Positioning	➔	*Base and Decision of where target to guard*
Spin on Ball	➔	*Adjust to ball path to apply spin*
Controlled Power	➔	*Decision on force for length and speed to target*

Figure 2 Strategic principles for playing net/wall games

The off-the-ball movements in Figure 2 refer to how the player shows tactical awareness by putting themselves into the right place in the court, before the ball arrives, in order to execute a successful shot.

1. *Base* refers to the player returning to a stable position after playing a shot with knees bent; feet shoulder width apart and slightly staggered, ready to push-off in any direction.

2. *Decision* actions reflect reading with anticipatory movement of 1) staying in base position, 2) moving-back to defend, or 3) moving-in to attack expected short ball.

3. *Cover* actions are where players respond with jump split-step as the opponent strikes the ball so they can move to cover the opponent's target area.

4. *Adjust* movements are where the player reacts to the arriving ball's trajectory with small push-off movements to execute a selected shot in the hitting zone in front of their body.

The off-the-ball movements can be assessed using a games performance assessment instrument with a peer assessment form sampled in Appendix A (Hopper, 2007). Asking students to watch and tick or cross when a peer uses the appropriate off-the-ball movement helps focus attention on how these movements not only facilitate skill development for the player, but also enable the observer to see how these movements generate better play.

Tactical Framework for strategic principles to play Pickleball

The rules, equipment and structures of Pickleball create distinct constraints and challenges that influence how players engage in the game. Expanding on table in chapter 11, this section offers four tables that frame the tactical problems to address Pickleball. Table 1 focuses on the strategic principles of *Consistency* and related court *Positioning*. The focus here is on developing games that are about keeping the ball going, figuring out where to go after playing a shot and what to do as the opponent strikes the ball. Skill cues focus on basic drive patterns and under-arm serve to start the game.

Table 1 Consistency learning experiences for Pickleball tactical problems

Strategic Principle	TACTICAL PROBLEMS	On the ball skills	Off-the ball movements
Consistency and court Positioning	***How do you play to be consistent and keep the ball in play?*** • Hit the ball high and into center of the target area. ***Where do you position yourself after your shot?*** • Behind the opponent's target area • Behind the back-line of the court ***Where do you send the ball to challenge opponent?*** • To spaces wide (to side), deep and short within the area of the court.	Drives and footwork Under-arm serve	Ready stance (Base) Jump side-step (Cover) Push-off (Adjust)

Table 2 focuses on *Ball Placement* and the related court *Positioning* that results from the target created by the placement of the ball in the opponent's court. Critical to this table is the idea of anticipating where the opponent will place their next shot. To play more offensively is to try to move the opponent around the court, hitting to open spaces, so as to get a short ball that can be attacked or to compel an error from the opponent. Table 2 assumes that players are able to keep the ball in play and are now focused on making it more challenging for the opponent to return the ball. The 'Where' questions invite responses that develop from the context of playing the game and create the need to develop more refined on-the-ball skills such as backhand drive, lobs, volleys and smash.

Strategic Principle	TACTICAL PROBLEMS	On the ball skills	Off-the ball movements
Placement and Positioning	***Where to place the ball to create spaces to attack?*** • Send shots deep in court • Hit to open areas on the outside of court • Hit the ball short then long • Varying height to get short ball • Attack opponent's weaker side • Hit deep at opponent to crowd their shot ***Where do you position yourself based on ball placement and anticipated response of opponent?*** • Move in to attack anticipated short ball • Approach shot down line, move in to volley - attack open space and gain mid-court area • Hit ball behind opponent and coast in for short ball • Drop-shot or lob - move in to gain mid-court area • Get behind lobs and then smash to spaces and move in to service line to attack response • Counter opponent's attack with high balls for time and anticipate shot for surprise counter-attack.	Backhand and forehand drives with contact in hitting zone. Basic topspin for depth on placement. Serve to area Flat basic slice approach shot to keep ball low Volley punch action Lob Smash Passing shots	Anticipate target (Decision movement) Recovery split-step (Base) Push-off quick movement (Cover) Knee bend to split step (Adjust) Recovery split-step (Base) Anticipate target (Decision movement)

Table 2 Placement and positioning for Pickleball tactical problems

Table 3 offers the final level of play, integrating consistency and placement principles with *Spin* and *Power* in shots. In order to develop the use of topspin and slice in shots, players will have learned to position themselves in the court effectively and are learning to manipulate the rallies by moving the opponent around the court both side-to-side and front-to-back. In order to apply spin to the ball, players need to be moving forward to play their shot, and strike the ball in the hitting zone approximately at knee to waist height, and just in front of the body.

Strategic Principle	TACTICAL PROBLEMS	On the ball skills	Off-the ball movements
Spin and Power	***When** do you use spin in shots to press, defend or attack spaces* • Spin on serve for kick and ball movement to challenge opponent on return • Rally with topspin/slice to pressing zones or spaces to move opponent out of position • Slice under ball for low bounce and to approach the net • If opponent deep in court use drop shot with under-spin for ball to bounce low. ***How** do you use spin and force in a stroke to set-up/win a point or stay in the rally?* • Attack pressing zones to keep the opponent in a defensive role by using, ▪ an approach shot down the line and move to net ▪ the rising ball by taking the ball early as bounces then coasting into the net ▪ the volley in the mid-court area to volley the ball deep or the drop it short ▪ the lob or passing shot when opponent attacks the net • Use height to gain time and spin to control ball flight. • Serve with hard and soft strokes and then move to cover anticipated target spaces. • Smash with spin and power into spaces	Slice spin with short preparation bat action high to low on ball Topspin to control power with bat action low to high on ball Side slice on serve to break bounce Topspin on serve to kick ball up Smash balls above head	Recovery to baseline (Base) Read as recovery to split step (Decision) Split-step as ball played (Cover) React to ball as bounces to execute shot (Adjust) Side step recovery to ready position (Base)

Table 3 Spin and power Pickleball tactical problems

Table 4 applies the strategic principles to doubles play. Doubles play should only happen once all the students are reasonably able to keep the ball in play (the worst experience for a player is to be playing doubles and be unable to contribute to the game). So here the assumption is that all the players have reached Table 2 principles of play before engaging in a doubles games. The 'How' and 'When' questions focus on the doubles team working as a unit to cover the court area and to move forward as a pair to take over the volley area in the front part of the court. Key ideas are to create gaps in opponents' court and to take away their time to cover the court area.

Table 4 Strategic principles applied to doubles tactical problems

Strategic Principles	TACTICAL PROBLEMS	On the ball skills	Off-the ball movements

Consistency
 	
Placement
 	
Positioning
 	
Spin
 	
Power
	Doubles:
	
	How do you work as a pair to cover the space?
	1. Playing as a pair – two up or two back
	2. Use height for time to recover
	
	How do you create spaces to attack as a pair?
	1. Drop ball short and move to mid-court area
	2. Look for spaces to create open areas
	
	When does a pair move forward in the court and when does a pair move back?
	1. Basic doubles positioning when partner returns the serve - partner mid-court area
	2. Back court set-up when partner serves
	3. Intercept volley
	    a. Off partner's shot split step to cross
	4. Off lob
	    a. Move back to cover smash
	    b. Move forward as pair if successfully lob an opponent
		Hit ball deep
		
		Drop-shot
		Angles to open up spaces
		
		Volley intercept
		
		Volley put away into spaces
		
		Lob
			Split-step to push-off side to Cover court.
			
			Recover to Base
			
			Push forward as a pair.
			
			Adjust step
			
			Decision movement as pair

Lessons and learning experiences

    The block-plan in Figure 3 outlines how games in the subsequent section can be sequenced with assessments woven throughout the unit; these include GPAI assessment, team role assessment (Appendix B) and then stations where students record progress in tasks related to the games played (see Appendix C). The games unit planning is based on a sequence of games developed in relation to the content analysis in Table 1 to 4. Democracy in action ideas are then listed linked back to Table 2 in chapter 11. These games then lead to the culminating event of the unit such as a team tournament. Lessons are best understood as a sequence of learning experiences that foster successful interactions for students. The length of lessons in any school, the make-up of students in a class (ability, age, gender, prior experiences), and the opportunities to practice outside

of class will vary from class to class. All these factors will influence how a unit of instruction progresses. Figure 3 (below) offers a suggested sequence.

Lesson	Introductory Game/task	Development Game/tasks	Culminating Focus Game	Strategic Principle table Democracy in Action *Skill focus*
1	Rally in full court	Spot-to-spot Wall ball Game Invention	Invented Wall Ball Spot-to-spot	Table 1 Elements **a**, **b**, c, **d** & e *Drives & base*
2	Push-off game Wall-ball with partner from team	Spot-to-spot Win-Racket Game Short-court feed	Win-Racket in full court	Table 1 and 2 Elements b, c, **g, h** *Drives, base & decision*
3	Short-Court Game Assign team roles	Space Adapt Wall ball Partner Feed	Space Adapt	Table 2 Elements b, c, d, e, **f** *Drives & decision*
4	Team play Space Adapt	Monarch Serve to target	Monarch GPAI	Table 2 Elements a, b, **c**, f, **h** *Serve & cover*
5	Team practice and assign roles	Short and In – Volley Line Game Invention	Short & In – Volley Monarch GPAI	Table 2 and 3 Elements **g**, c, a, h *Volley & adjust*
6	Short and In	Volley Dink Line Game	Short and In Team Monarch GPAI	Table 2 and 3 Elements g, c, h, **i** *Volley & Serve*
7	Rally games	Stations	Team Monarch	Table 3 Elements e, f, g, i *Review*
8	Stations	Doubles Dink Line Game Volley Dink	Doubles Dink 3 and Win!	Table 4 Elements **e**, c, h, **i** *Doubles*
9	Short-Court	Station Re-assessment	Official practice with doubles	Table 4 Elements **d**, g, h *Singles & Doubles*
10	GPAI	Stations	Team practice with Officials	Player Choice
11	Team Role assessment	GPAI	Final Rankings	Final assessments
12	Tournament Event			Championship

Figure 3 Suggested block plan for a grade 8 class

As the unit progresses towards the final team tournament, the Sport Education model encourages students to work in their teams, noting their personal progress, taking on a role, being assessed and coached by peers. The teacher focuses more on teaching and facilitating learning and less on managing the learning environment. Outline games can be converted into task cards and then used as games to guide team practices in stations and team practices.

Each lesson should follow the pattern of introductory, development, and culminating activity. Introductory activities serve as a review from previous lessons. They should create connections to tactical problems considered, offer high activity levels to warm-up the body and the mind, be either individual or partner based, and connect to the development of the lesson. The lesson is based on a focus game that emphasizes the strategic principles for that lesson. The development phase of the lesson should involve group work, problem solving, game-play and skill development. Playing the game will lead to a task progression that helps the students work on the skill cues and tactical problems that the game creates. The focus game is then played again in the culminating

activity of the lesson to transfer the progressions into the game and potentially to extend the game towards the full game of Pickleball. As a general pattern, games learned in earlier lessons often become introductory activities in later lessons. Also, as a unit develops, students may select games to play again to work on aspects of their skill development and thus to improve their assessments. This idea is particularly encouraged when a Sport Education model of instruction (Siedentop, Hastie, & Van Der Mars, 2011) is added to the TGfU model (Alexander & Penney, 2005).

In the next section, I will apply these strategic principles to the three court areas created by the rules of Pickleball. In each court area, modified games will be suggested that focus on co-operative games that exaggerate tactical problems and related skills and then competitive games that represent aspects of Pickleball. After each game, connections are made back to the Democracy in Action (Democracy in action) ideas highlighted in Chapter 11.

Court areas and learning stages to play Pickleball

The rules of Pickleball and physical structure of the badminton court create three areas of play,

(1) short court area created by the Pickleball rule that players cannot volley the ball in the service box area

(2) full-length court for drive strokes area, generated because the serve and return of the serve shots must bounce in the court (double bounce rule).

(3) volley court in the midcourt area where players can volley the ball (hitting it before it bounces).

Once novice players have experienced playing in the Pickleball court and struggled to keep the ball in play, I usually direct them to play against the wall with a partner observing. As shown on Figure 4, the intent here is to rally the ball (sponge or whiffle) against the wall six times or more in a row to answer the tactical problem *"How do you play to be consistent and keep the ball in play?"* The teacher models for students the set-up of one partner observing to suggest the right equipment (hand, scoop, or bat), ball and placement of target on the wall. Once pairs have agreed on how to work in this relationship, then the teachers adds a line marker on the ground to mark the area within which the ball must land and to which the player should go behind after playing a shot. This then becomes the 'base' between shots. If the player is not able to hit the ball as it

arrives, he can self-feed the ball by hitting it upwards then striking it to hit the wall. A key question is how to send the ball high on the wall to create time to recover to play the next shot. The critical question regarding tactical awareness is "*Where do you position yourself after your shot?*" The observer reminds the player to return behind the line marker on the ground (as shown in Figure 4 below) in the 'base' position to recover to play the next shot.
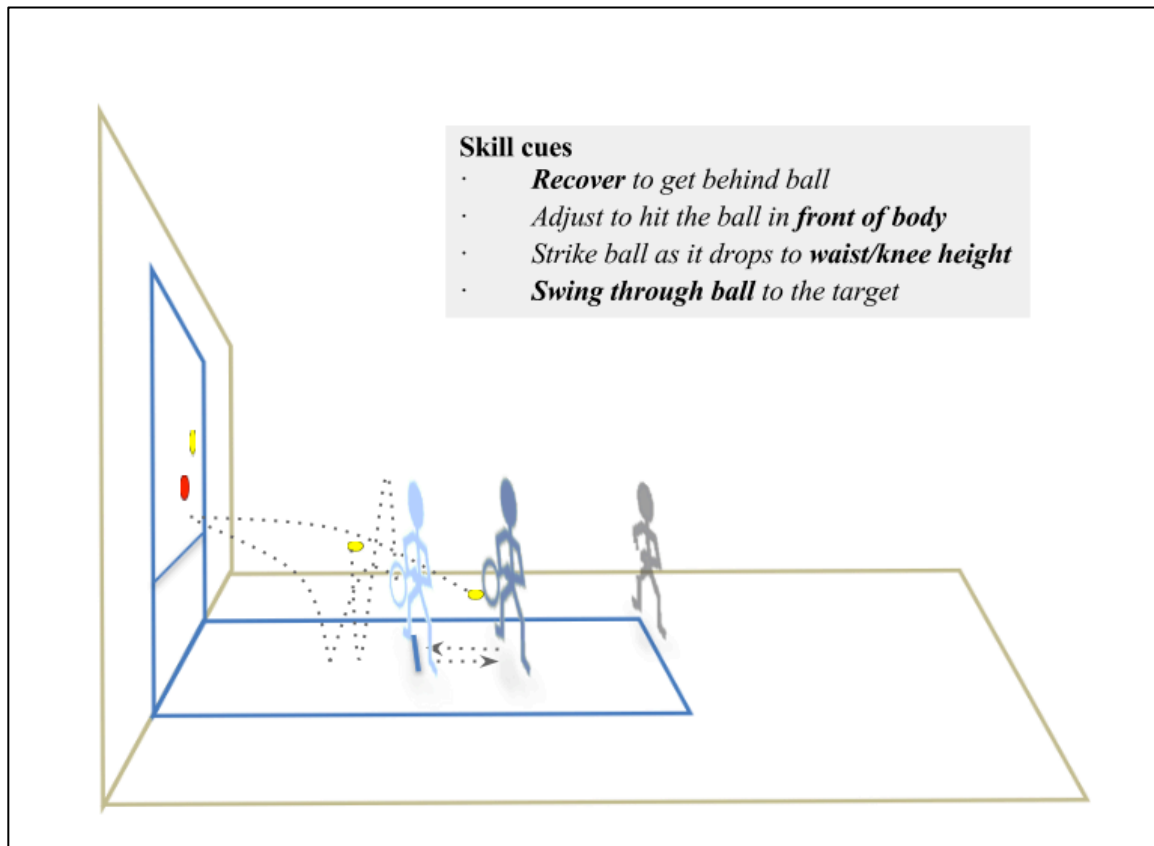
Figure 4 Wall ball to spots with partner observer

Once each player has played and established best equipment for them to keep the ball in play, then the two players can combine to invent a game using the wall, the targets, and line markers. The game can be co-operative (e.g. working to achieve a common goal such as 20 hits in row aiming at a wall target), or competitive (players scoring points if their opponents miss). Students are instructed to create a game with three main rules that address:

(1) how to start and restart,
(2) how to keep ball in play, and

(3) how to score points.

At this point, players can be prompted by the tactical question **"*Where do you send the ball to challenge opponent?"*** The answers indicated in Table 1 lead to the idea of sending to spaces or back at opponent if they have not recovered outside the area of play. *Here students learn to work democratically to structure the play environment, offering feedback and listening, adapting to spatial demands of the game and creating a game they both find challenging.*

Stage 1: Short-court games

  Tactical focus is Consistency and positioning

  Variations of wall ball games can be played frequently throughout a unit to help players refine their technique of striking the ball and moving to relocate to the bounce. However, to help them play in the Pickleball court hitting over a net, modified games in the short-court area can also be developed, focusing on (1) consistency (*"How do you keep the ball in-play?"),* and (2) positioning in relation to the opponent's target area in your court (*Where do you position yourself after your shot?")*. The game in Figure 4, *Spot to spot rally* focuses on locating to the *base* between strokes. The aim of the game is to rally the ball inside the service box area, aiming to hit the partner's spot.

Intent of the game: Rally the ball inside the service box area, aiming to hit the partner's spot

  1. Start by hitting ball over net into partners service-box.
  2. Try for the longest rally with only one bounce between hits (self-hits allowed)
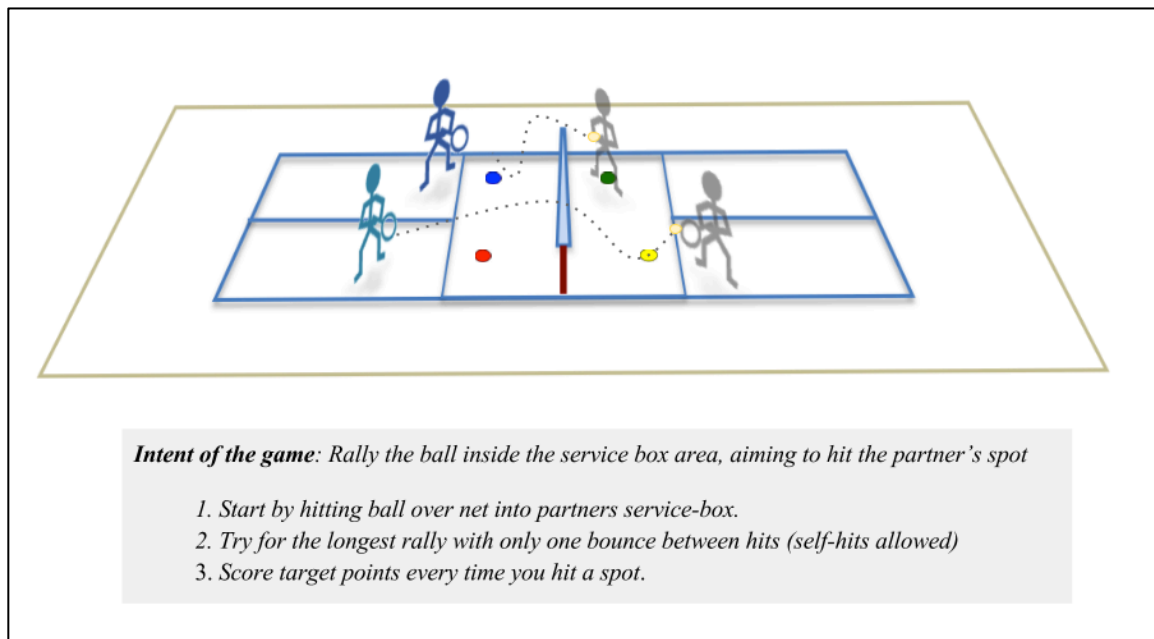 *3. Score target points every time you hit a spot.*

Figure 5 Short Court rally game

The tactical awareness focus in this game is to send the ball high enough to create time to recover and to always return to the spot behind the service line so that you can move forward to the next shot.

A progression of tasks to develop drive technique skill cues is to practice against the wall and/or to have one partner catch the ball at the net and feed it to the spot for their partner (see far pair in Figure 4). Key cues for partner to use are

(1) "V" grip on bat handle with bat parallel to ground,

(2) bend knees with feet shoulder width apart and staggered,

(3) weight shift from back to front foot on shot as strike ball in front of body,

(4) bat face parallel to ground as strike ball, and

(5) follow-through to target.

Observing and coaching as well as giving and receiving advice are key Democracy in action elements here. When players return to the *Spot to spot rally* game they can extend the rules inventing a scoring system, changing the space and spot placement. Now the focus may become a competitive game, so teachers can ask, "*Where do you send the ball to challenge opponent*?"

Win the bat game

   Tactical focus on placement and positioning

Initially, as the court size is increased partners rally to find how they can play to keep the ball in the court for four shots in a row. The larger area often causes players to stand still and watch, rather than cover the court. The game in Figure 6 allows one player to focus on movement with the other focused on striking the ball. One player has the bat; the other is catching the ball and then sending it to the target. If the sender hits the target, she becomes the batter. The batter wins points if the sender makes a mistake. The game exaggerates by simplifying the idea of positioning for the bat player who knows where the catcher will send the ball so she can set-up early to aim the ball to open spaces.
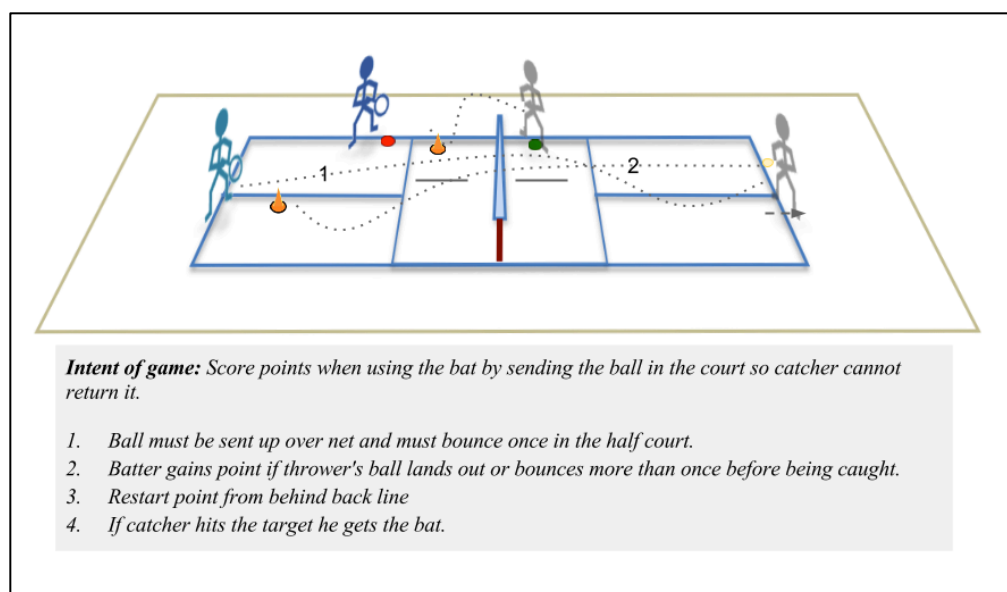
Figure 6 Win the racquet game

In this game, teachers ask players to consider *"Where to place the ball to create spaces to attack"* As noted in Table 2, the batter can now explore ways to hit the ball deep then short, high and low, side to side and combinations of these placements to cause the thrower to make a mistake. Both players in this game can also be asked to consider *"Where do you position yourself based on ball placement and anticipated response of opponent?"* For the batter, the answer is behind the target, but for the thrower, the answer depends on where the spaces are on their side of the court.

Key cues for striker:

(1) Set-up base early to receive the ball

(2) **Adjust body** as ball arrives to be able to strike ball in the hitting zone.

(3) Hit with flat face and weight transferring forward.

Win the Racket is a game that demonstrates the challenges students have in hitting with the backhand, especially if the target is placed on the receiver's backhand side creating the need to work on back hand technique). The key for backhand is to shift the "V" grip to feel the face of the bat in on side of the thumb and fleshy part of the hand. With this backhand grip, the player then practices striking a ball fed by their partner (see far pair in Figure 6) to the target, emphasizing bending the knees, stepping into the shot and brushing the bat face up and through the ball as it drops (Hopper, 2007). This practice from a consistent feed, with feedback from a partner can then be extended to

practicing against the wall then back to the win-racquet game in small to full-length court.

In relation to Democracy in action players are learning to appreciate need for defining intent as they adjust game to work on skills, coach, and give feedback as well as developing tolerance with their peer's abilities in playing the game.

Stage 2: Games in Long-court Area

As players' gain confidence with both positioning and forehand and backhand drives, their play can extend into the full court. Now the focus is on learning to hit to the spaces of the court and covering their opponents' target area. *Space Adapt* in Figure 7 is a good example of modification by adaptation game (Hopper, 2011). Here the player who wins a point has their court space increased as they progress back to the baseline. The first pair in Figure 7 has one space to cover the other two spaces. In the pair in the rear, one player has three spaces to cover the other has two. With more court space, the game could be played with just two players on one court.
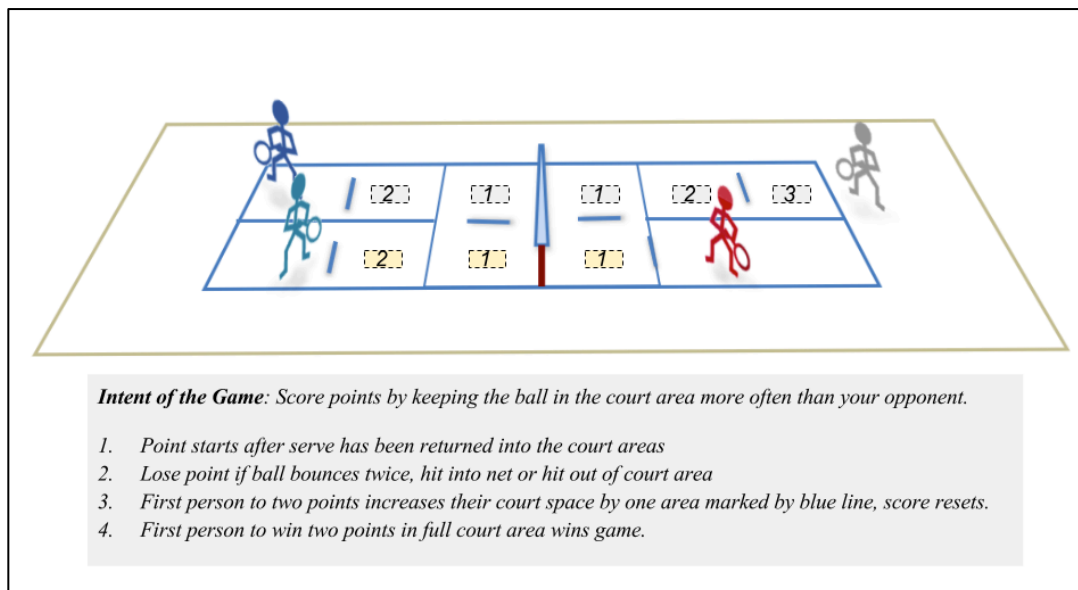
Figure 7 Space adapt game

The *Space Adapt* game promotes tactical awareness in several areas. Firstly, as students consider "*Where to place the ball to create spaces to attack?*" it gets both players to focus on using the spaces to create spaces. Where the zone is long and thin (see Figure 7), sending the ball short then long will give an advantage to the player on the right who only has one zone to cover. The game also makes the players consider how to answer the

positioning tactical question of "*Where do you position yourself based on ball placement and anticipated response of opponent?*" As the space increases, the answer to this question changes as the target spaces increase. For the novice player with the smaller court, the answer becomes more apparent as he knows where the more able opponent will send the ball and can now set up early to hit to the increased spaces. Again, this game leads to the need to practice hitting to spaces. Previous tasks (such as partner feeding drills or wall practice with spots to aim at) become ways to practice taking advantage of the spaces as they become available. Once players can play successfully in the full court, teachers can provide them with games that develop consistency, such as hit four shots in a row before a point can be won. *In relation to Democracy in action the focus here is on adaptation and affirmative action, but also developing empathy in a close game.*

The next game focuses on the use of service and the return of serve. *Monarch of the Court* (Figure 8) involves players serving under-arm from the back-line in half or whole court areas to opponents on the other side of the net. The game is a great way to engage many players and offers an ideal context to enable peer assessment.

GPAI

Intent of the Game: To be the receiver, the Monarch of the court, at the end of the game

1.   Servers sends ball into opponent's service box from behind baseline and from their hand
2.   After ball bounces once in service court it is sent back by receiver across court to server's court
3.   Players play out point from return using Pickleball rules
4.   Serving players rotate, waiting servers field a ball so ready to serve when their turn
5.   If serving player wins a point he keeps tally, when server has 2 points he goes for 3 points. If server wins he becomes Monarch if he losers he returns to 0 points.
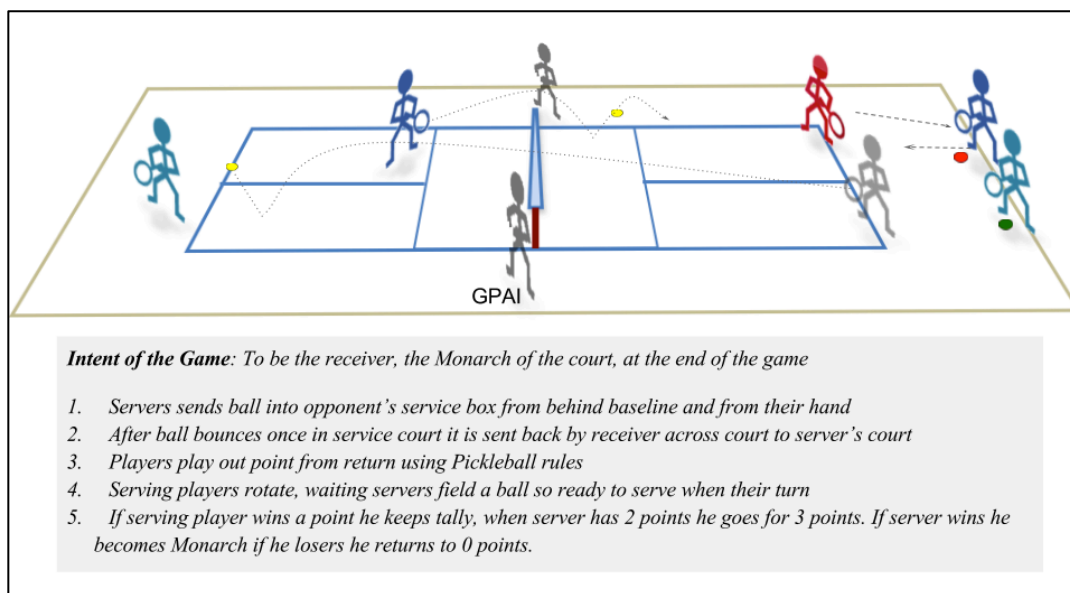
Figure 8 Monarch of the court

Monarch games can be played in two half-court areas, serving down the line or on one court serving across court. This game emphasizes serving the ball consistently over net and then considering "*Where to place the ball to create spaces to attack?*" as target areas from the serve create spaces in the opponents' court to aim at when ball returned. This can be practiced with targets set up on the court. Players rotate, aiming to hit a target

as partners field the ball. The tactical concept from Table 2 asks players consider *"Where do you position yourself based on ball placement and anticipated response of opponent?"* As players learn to set-up with a *base* position behind the baseline, they can then explore the use of spin on the ball and their opponents' responses, positioning themselves accordingly as they address the question *"How do you use spin and force in a stroke to set-up/win a point or stay in the rally?"*

Key cues for server are

(1) Stand side-ways on
(2) Step into court area shifting weight forward
(3) From ball in hand, strike the ball as it drops onto bat
(4) Angle bat parallel to the ground and toward target area (wrist cocked up)
(5) Add spin by brushing up on the ball for topspin or cut across ball for under and sidespin

In relation to Democracy in action, this game highlights observing, coaching as well as giving and receiving feedback in the context of a competitive game.

Stage 4: Volley Court Area

The volley shot involves striking the ball before it bounces into open spaces. Essentially, the volley reduces the time opponents have in which to play their next shot. The *Short and in* game (Figure 9) creates the need to volley by exaggerating the use of the volley to win a point. Here when ball is hit shorter than the blue line, the player hits the ball and moves to the service-line into a *base* position in preparation for the next shot.
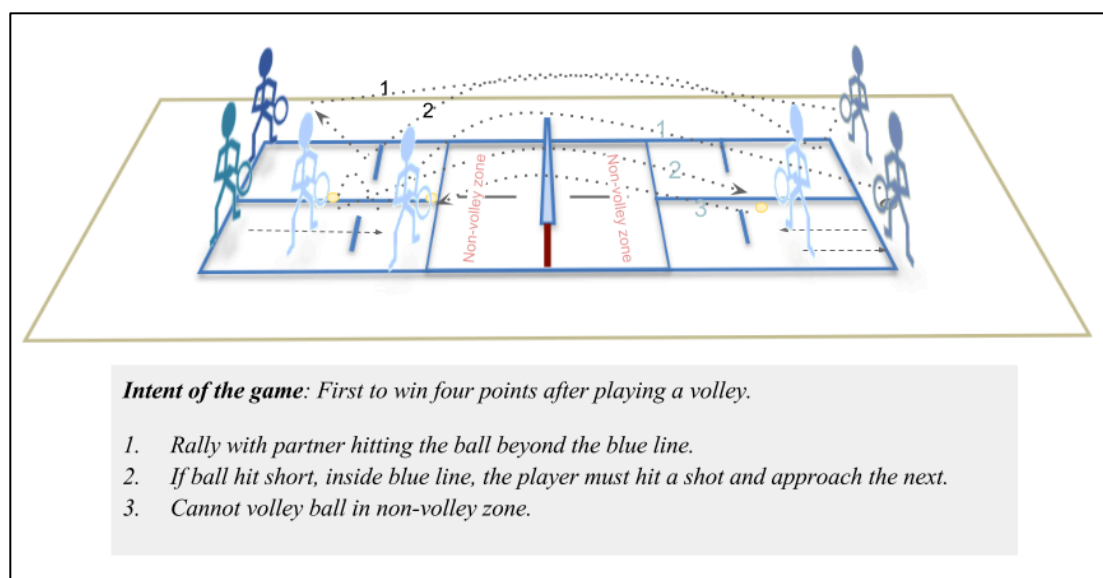
Figure 9 Short and In

The game exaggerates the idea of hitting down the line on short balls and creates the conditions for the player to consider "*Where do you position yourself based on ball placement and anticipated response of opponent?*" Often shadow drills practicing the movement pattern of run forward, stop in *base* and volley, help students' set-up to volley. Key to the effective volley is a punch action with minimal bat movement and simple weight shift forward to attack the ball. The *Line game* in Figure 10 helps to address the key movement pattern as well as the punch action.
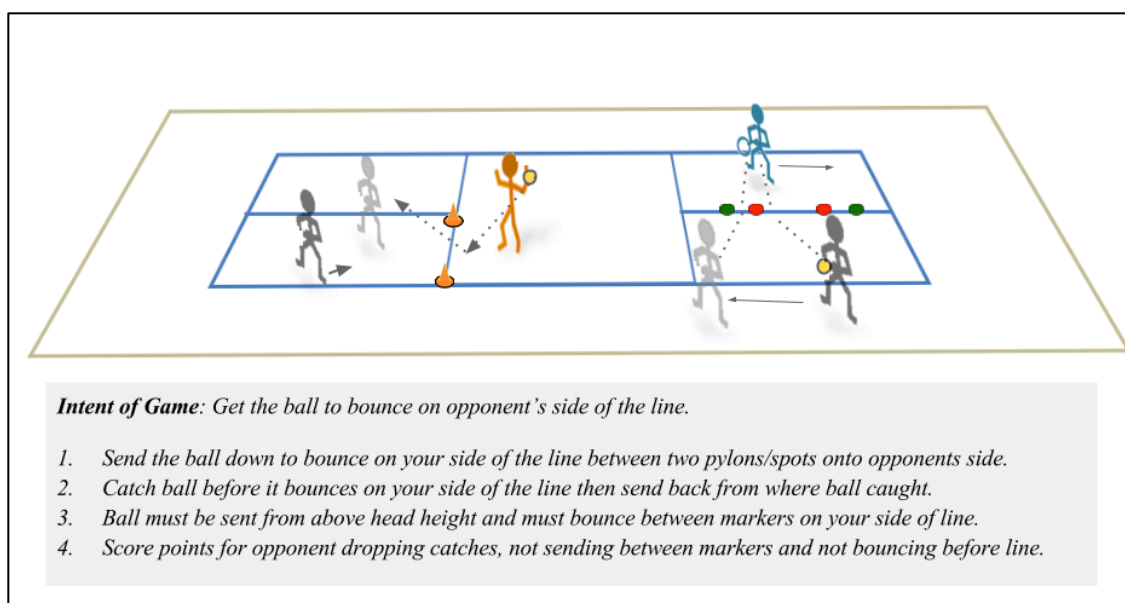
Figure 10 Line game

In the *Line game*, sending the ball down to bounce on one's own side of the line creates time for opponents to move to the flight trajectory of the ball as it bounces up and then falls on their side of the line. As players send the ball, their opponents can do a jump step (*cover*) that allows them to push-off to where the ball is sent and then *adjust* to catch the ball, or later to use a bat to strike the ball back by punching it down to the ground in front of the line. The punch action comes from (1) wide base with opposite foot to bat leading as the player's weight is shifted from back to front foot, (2) bat striking the ball in front with a flat face, and (3) opposite hand up tracking the ball and matching the bat hand as the ball is struck. A good progression here is to have one player with a bat (the other catching by hand) play up to three points and then swap. In addition, the spots can be used to create an adaptation game where the successful player is challenged as the space between their spots is decreased or increased.

The *Volley-up dink* game (see Figure 11) enables players to learn to volley with time, as the ball must be hit up, as they learn to consider "*Where do I position myself after your shot?*" *Volley-up dink* emphasizes use of spin to drop-shot and lob the ball as players learn to aim the ball short and long with the constraint that the ball must be hit upwards.

Intent of the Game: Volley the ball in the court more often than the opponent

1. Score a point if the ball lands in the opponent's court
2. Score point if opponent's ball lands out or in the net.
3. Ball can only be hit upwards with a volley.
4. Serve from behind the backline into opponent's service-box and move into the court.
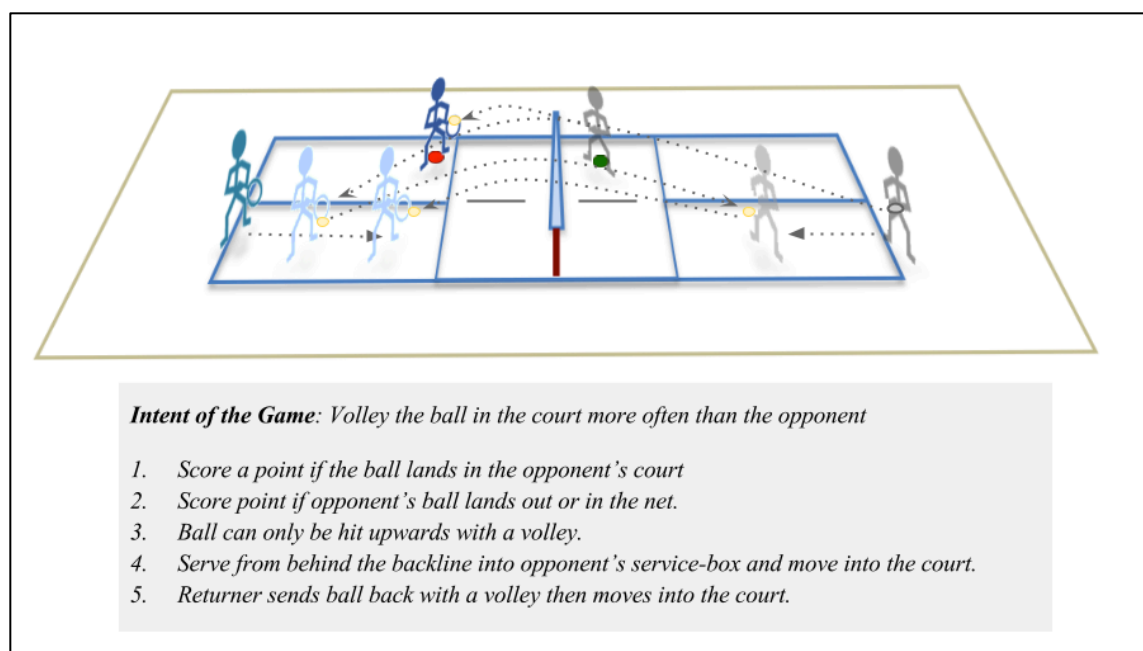5. Returner sends ball back with a volley then moves into the court.

Figure 11 Volley-up dink

To practice players can work in pairs with players sending the ball by hand for partners to volley with a punch action. All these games progress back to the *Short and In* game, which allows the volley to be transferred back into the full game of Pickleball. *The combination of games encourages democracy in action ideas around tolerance for different abilities, adaptation for affirmative action and playing in difference roles such as more defensive or more attacking.*

Stage 4: Doubles Dink Tennis

The final section offers two doubles games that can be used to explore the strategic principles noted in Table 4. Building from the previous sections, this games focuses on players exploring the following tactical questions: "*How do you work as a pair to cover the space?*" and "*How do you create spaces to attack as a pair?*" *Doubles dink* in Figure 12 emphasizes the short game of angles where the ball cannot be volleyed, encouraging small 'dink' shots after the bounce, as well as lobbing to the back court, and setting up as a pair in the volley area just behind the service-line.

Aim: To out "dink" the opponents from ball played from the net

1. One player from pair balances ball on the net to start the game.
2. As ball falls on one-side of the net point starts from bounce.
3. Ball cannot be volleyed in "non-volley" zone with rest of Pickleball rules applying
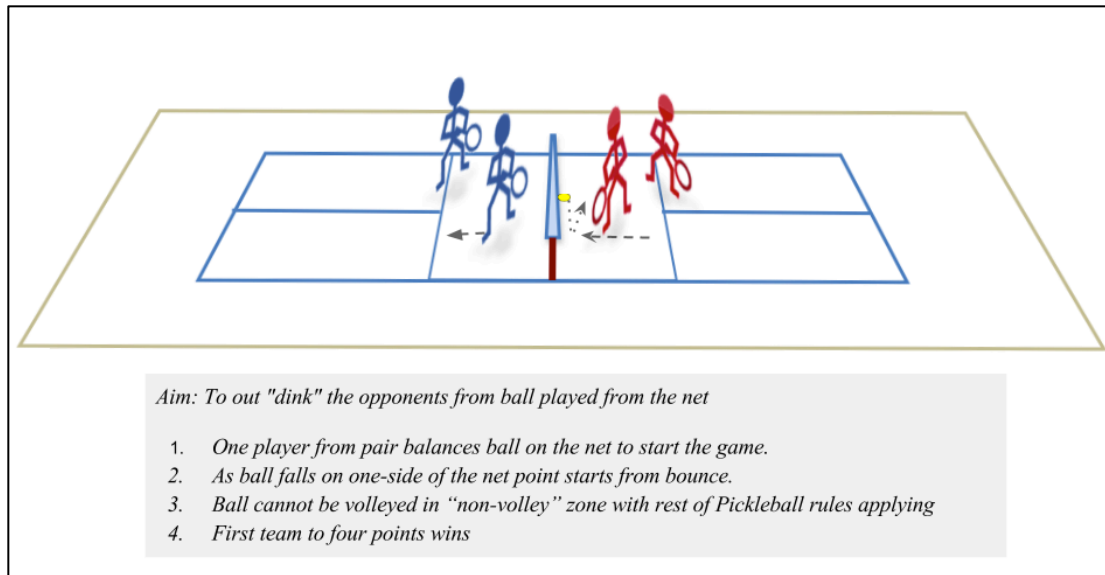4. First team to four points wins

Figure 12 "Doubles dink"

This game really focuses on the pair communicating to cover front and back court as well as the side of the court. After every shot, each player needs to cover the angles, setting up in a base position ready to adjust quickly to the shot played. *For Democracy in action the working with a partner in games that afford the ability to play as a pair develops consensus building and tolerance for partner's contribtions as a clear communication process is developed between the pairs.*

The final game *Three for a win!* helps a pair of players work from the serve into the point. This game is a representation of Pickleball doubles, except that the point starts after a serve is returned and the serving pair puts the ball into play. The game creates rallies that allows the pairs to consider "*When does a pair move forward in the court and when does a pair move back?*" The key here is to figure out how to attack with the volley in rallies in order to disrupt the opponents' coverage of the court.
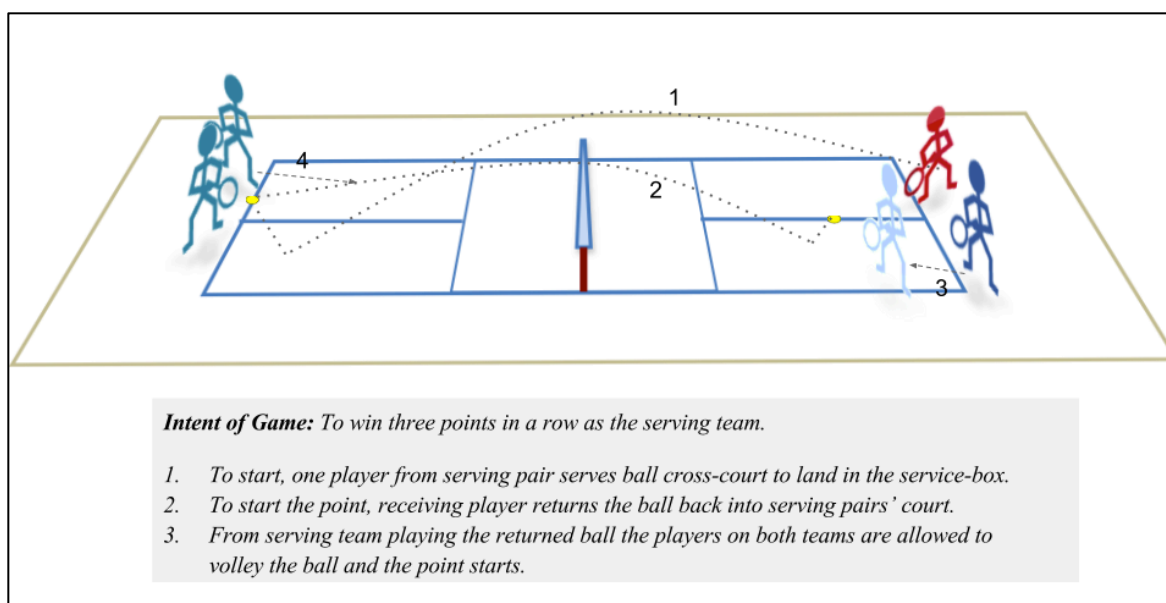
Intent of Game: *To win three points in a row as the serving team.*

1. *To start, one player from serving pair serves ball cross-court to land in the service-box.*
2. *To start the point, receiving player returns the ball back into serving pairs' court.*
3. *From serving team playing the returned ball the players on both teams are allowed to volley the ball and the point starts.*

Figure 13 Three for a win!

Conclusion

Modified games are designed to enable progressions that promote repetition in increasing challenging environments shaped by the teacher and eventually by students themselves, as they learn to play and practice in worthwhile games. The sport education model integrated into Figure 3 enables the opportunity to practice as part of a growing commitment to a team, with associated consensus building, as players take on authentic team roles such as coach, manager, official and equipment monitor, in preparation to play in a formal team competition. Motivated by the prospect of a festival tournament, students prepare to participate in the culminating event that has been designed so that all students feel they are able to engage and contribute to their team's score. Team ranking of players ensures players of similar ability play each other. A handicap scoring system (such as giving a point start to a player who loses the first game) with tennis scoring promotes close and exciting games. When a Sport Education model is used, a unit of instruction can be spread over a longer period of time allowing students to acquire skills through practice inside and outside of class.

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Table 5 Consistency learning experiences for Pickleball tactical problems

Strategic Principle	TACTICAL PROBLEMS	On the ball skills	Off-the ball movements
Consistency and court Positioning	***How do you play to be consistent and keep the ball in play?*** • Hit the ball high and into center of the target area. ***Where do you position yourself after your shot?*** • Behind the opponent's target area • Behind the back-line of the court ***Where do you send the ball to challenge opponent?*** • To spaces wide (to side), deep and short within the area of the court.	Drives and footwork Under-arm serve	Ready stance (Base) Jump side-step (Cover) Push-off (Adjust)

Table 6 Placement and Positioning for Pickleball tactical problems

Strategic Principle	TACTICAL PROBLEMS	On the ball skills	Off-the ball movements
Placement and Positioning	***Where to place the ball to create spaces to attack?*** • Send shots deep in court • Hit to open areas on the outside of court • Hit the ball short then long • Varying height to get short ball • Attack opponent's weaker side • Hit deep at opponent to crowd their shot ***Where do you position yourself based on ball placement and anticipated response of opponent?*** • Move in to attack anticipated short ball • Approach shot down line, move in to volley - attack open space and gain mid-court area • Hit ball behind opponent and coast in for short ball • Drop-shot or lob - move in to gain mid-court area • Get behind lobs and then smash to spaces and move in to service line to attack response • Counter opponent's attack with high balls for time and anticipate shot for surprise counter-attack.	Backhand and forehand drives with contact in hitting zone. Basic topspin for depth on placement. Flat basic slice approach shot to keep ball low Volley punch action Lob Smash Passing shots	Anticipate target (Decision movement) Recovery split-step (Base) Push-off quick movement (Cover) Knee bend to split step (Adjust) Recovery split-step (Base) Anticipate target (Decision movement)

Table 7 Spin and power for Pickleball tactical problems

Strategic Principle	TACTICAL PROBLEMS	On the ball skills	Off-the ball movements

Spin and Power	***When do you use spin to control power in shots to press, defend or attack spaces***
	• Spin on serve for kick and ball movement to challenge opponent on return
	• Rally with topspin/slice to pressing zones or spaces to move opponent out of position
	• Slice under ball for low bounce and to approach the net
	• If opponent deep in court use drop shot with under-spin for ball to bounce low.
	
	How do you use spin and force in a shot to set-up/win a point and stay in the rally?
	• Attack pressing zones to keep the opponent in a defensive role by using,
	  ▪ an approach shot down the line and move to net
	  ▪ the rising ball by taking the ball early as bounces then coasting into the net
	  ▪ the volley in the mid-court area to volley the ball deep or the drop it short
	  ▪ the lob or passing shot when opponent attacks the net
	• Use height to gain time and spin to control ball flight.
	• Serve with hard and soft strokes and then move to cover anticipated target spaces.
	• Smash with spin and power into spaces
		Slice spin with short preparation bat action high to low on ball
		
		Topspin to control power with bat action low to high on ball
		
		Side slice on serve to break bounce
		
		Topspin on serve to kick ball up
		
		Smash balls above head
			Recovery to baseline (Base)
			
			Read as recovery to split step (Decision)
			
			Split-step as ball played (Cover)
			
			React to ball as bounces to execute shot (Adjust)
			
			Side step recovery to ready position (Base)

Table 8 Strategic principles applied to doubles tactical problems

Strategic Principles	TACTICAL PROBLEMS	On the ball skills	Off-the ball movements

Consistency
 	
Placement
 	
Positioning
 	
Spin
 	
Power
	Doubles:
	
	How do you work as a pair to cover the space?
	
	How do you create spaces to attack as a pair?
	1. Playing as a pair – two up or two back
	2. Use height for time to recover
	3. Drop ball short and move to mid-court area
	4. Look for spaces to create open areas
	
	When does a pair move forward in the court and when does a pair move back?
	1. Basic doubles positioning when partner returns the serve - partner in mid-court area
	2. Back court set-up when partner serves
	3. Intercept volley
	   a. Off partner's shot split step to cross
	4. Off lob
	   a. Move back to cover smash
	   b. Move forward as pair if lob opponent
		Hit ball deep
		
		Drop-shot
		
		Angles to open up spaces
		
		Volley intercept
		
		Volley put away into spaces
		
		Lob
			Split-step to push-off side to Cover court.
			
			Recover to Base
			
			Push forward as a pair.
			
			Adjust step
			
			Decision movement as pair

Appendix A

Pickleball: A Game Performance Assessment Instrument (GPAI)

PLAYER NAME: _____   **OBSERVER:** _____

Observer watch assigned player(s). For each point:

1. Focus on skill execution and related off-the-ball movements.
2. Record "✓" for an appropriate response or "X" for an inappropriate response for each movement skill as the point is played.
3. After 3 or 4 points give feedback to your player based on your observations.
4. Return to game focusing on new movement skill or repeat movement skill if improvement needed.

Skill - Sending the ball efficiently into the court to the appropriate target area or striking the ball in the hitting zone and setting up for recovery.
Base - Recover to a position to defend expected target area and set-up to attack opponent's target area.
Decision - Read with anticipatory movement of 1) staying in base position, 2) moving-back to defend, or 3) moving-in to attack expected short ball.
Cover - Respond with quick split-step preparation in opponent's target area as opponent strikes the ball, then move to cover where ball sent.
Adjust - React to ball with small push-off movements to set-up to execute shot in the hitting zone.

Person	Skill	Base (Recover)	Decision (Read)	Cover (Respond)	Adjust (React)
Tim Hopper	✓ ✓ ✓	✓ X ✓ ✓	X ✓ ✓ ✓ Good to move forward on short serve. Anticipate	✓ ✓ ✓	✓ X Move back to give yourself time ✓ ✓

Appendix B

ASSESSMENT RUBRIC FOR TEAM MANAGER

TEAM MANAGER Name: _____   **Group** _____   **Class:** _____

	YES	How?	NO	Why not?
I was able to manage the team by…				
Ensuring consensus building in any decision-making…				
Using different strategies to enable all team-members to speak…				
Using majority rules voting when needed…				
Using different strategies for conflict resolution…				
Involving all players fairly with rotation of subs and positional play…				

Appendix C

Game Station Assessment form: Team stats to mark progress

Team Name: _____

Player Name	1. Short Game Consistency				2. Service and Monarch				3. Drives and Space Adapt				4. Officiate, singles doubles & GPAI			
	Longest Rally *Number*	4R Feed *Tick Base Adjust*	Base Spot *Tick Hit to space*	Spot-Spot *Tick*	Won as Monarch	Won point as server	Won as server	Score out of 5 serves	Got to full court	Longest wall rally	BASE in win racket	No. of space adapt games	Officiated a game	Served a game in singles	Played a doubles game	GPAI on game
Example *Tim Hopper*	12	✓	✓		✓	✓	✓	4	✓	14	✓	3	✓	✓		✓