

## **Games classification system: Teaching strategic understanding and tactical awareness**

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This paper will explain how, based on a games classification system, strategic understanding and tactical awareness can be taught as concepts that transfer between games. Developing from the presentation of Hopper and Bell (1999a) on the Tactical Awareness Components to Increase Cognition (T.A.C.T.I.C.) framework, this paper will conclude with an analysis matrix for teaching tactical understanding in games like tennis and squash. For this paper a game is defined as physical activities using an object that are played in society, for example football, tennis, golf and softball. Strategic understanding is identified as understanding ways of playing, for example getting the ball back into play when playing tennis. Tactical awareness is identified as ways of playing to gain an advantage over opponents, for example, a fast break in basketball.

### ***Games classification systems***

Games classification systems were popular during the 1970's and 1980's. They presented frameworks for selecting and teaching games that would offer a well-balanced curriculum (Werner & Almond, 1990). The most popular game classifications systems were those advocated by Mauldon & Redfern (1981), Ellis (1983) and Thorpe, Bunker, & Almond (1986). As Werner and Almond (1990) explain, each of these classification systems had unique characteristics, but developing from the lead of Mauldon and Redfern (1981), the essence of these classification systems was focused on the body-management (locomotive, non-locomotive) motor skills and equipment handling (manipulative) motor skills needed to play games. For a detailed explanation of a games classification system based on motor-skills refer to Wall and Murray (1994). Based on these classification systems, provincial curricula in British Columbia, ??? and the national curriculum for PE in the United Kingdom, have grouped games in the following categories:

1. Target games such as golf, lawn-bowls and ten-pin bowling. Essential body management (BM) skill is balancing. Essential equipment handling (EH) skill is sending-away (throwing or striking).
2. Batting and fielding games such as cricket, softball and baseball. Essential BM skills include run, jump, stop, turn and guard. Essential EH skills sending away (throwing and striking) and receiving (collecting and catching).
3. Net/wall games such as tennis, volleyball, badminton, squash and racquetball. Essential BM skills include run, stop, turn, jump and guard. Essential EH skills include sending away and preparing to receive.
4. Territory games such as soccer, ice hockey, basketball, rugby and football. Essential BM skills include run, stop, turn, jump and guard. Essential EH

skills sending away, receiving (catching and trapping) and retaining (dribbling and carrying).

From this background knowledge, this article suggests a games classification system that categorizes games as advocated above, but with fundamental consideration given to the tactical demands of the games within each category (Thorpe, Bunker, & Almond, 1986). The game classification system to be explained here suggests the central importance of strategic understanding and tactical awareness whenever teaching children to play games.

Hopper (1998) suggested progressive principles of play for the four games categories based on the primary rules of games within each games category. The principles of play are the basic elements of play that structure effective game playing. For example, in net/wall games the primary rule of these games is essentially that 'The aim of the game is to get the object into the area of play more often than an opponent.' This primary rule leads to progressive principles of play that are *consistency*, then *placement* of the object and *positioning* in relation to opponent's target area, and finally *spin* and *power* to make it difficult for an opponent to get the object back into play. For further analysis of primary rules and principles of play refer to Hopper (1998).

The principles of play give an effective framework for progressively teaching students the strategic understanding to be successful game players. However, understanding these principles does not happen for students from simply being told or shown. Students need to be taught the principles of playing, repeatedly, within gradually developing modified games that, through teacher guidance, enable the students to appreciate and realize how to gain an advantage over an opponent. In other words, students need experiences in lead-up games that allow them to determine how to play tactically. How does the teacher do this?

### ***Tactical Awareness Components***

The T.A.C.T.I.C. theoretical framework for analyzing tactics in games based on five components of play (Hopper & Bell, 1999). The five components are broken into two groups, the initial components and the advanced components (see Fig 1). The initial components contain three aspects:

1. SPACE: Where an object should be placed in the area of play and where a player should go in the area of play.
2. TIME: When to execute a skill within a game, when to create time to play a shot.
3. FORCE: How much and where to apply force on an object for height, directional control and distance.

Traditionally, teachers using a movement approach have used these components to get young children to experiment and explore as the children learned to control objects in the environment set by the teacher. We have found these components particularly effective for young children and when introducing children to game structures using a more co-operative focus.

The spatial component is foundational to tactical awareness. Once students appreciate the need to manipulate how they use 'space', then 'time' and 'force' components become a natural progression to their growing tactical sophistication. The advanced components add the relationship aspect of tactical play. Opponents who can use space, force and time to affect their play create an unpredictability that keeps the outcome of play uncertain as they probe the ability of their opponents. This relationship

focus is fundamental to making a game play. The advanced components that focus on the relationships between opponents are:

4.SELF: In relation to what you are able to do with the initial components what should you do to gain a tactical advantage over your opponent?

5.OTHER: In relation to what the other player is doing with the initial components what should you do to gain a tactical advantage?

These components create in the players' minds the infinite possibilities of play within a game structure against similarly astute and agile opponents. To show how a teacher can use these initial tactical awareness components to increase students' cognitive understandings of game playing, there follows an example from the net/wall category of games.

### ***Toss onto target game***

In the following game we have found particular success with grade two students. Before any game is played it is important that students have, with the most appropriate object (usually a large playground ball), the pre-requisite skills at a level that will enable them to play. For this game students need to be able to *consistently* toss a ball into the air and catch it after one bounce. Key refinements to help them perform these skills would be, (i) toss with arms extending up, (ii) move to where the ball is going to bounce, (iii) get beneath ball, and (iv) keep hands together and draw the ball into the body as it drops onto hands and arms. Once students have these refinements to a level that gives them success then the teacher can give each student a target (coloured card or hoop). Now they are ready for the "toss into target" game. The teacher can then give the following task,

"Tossing the ball up above your head, how many times can you get the ball to hit the target? Let the ball only one bounce?" The pictures in Figure 1 show a student performing this task.

The idea behind this task is to get the children tossing and catching a ball off one bounce *consistently* and learning the technique for tossing the ball accurately (*placement*). Young children usually toss the ball up and towards the target, and then watch the ball as it bounces before chasing after it (see Figure 1a). Rarely, in this way of playing do children catch the ball before it bounces and often end up over stretching for the ball (see Figure 1b) not catching it or stumbling as they catch. To help the children have enough time to catch the ball after one bounce ask the children to explain what happens when they toss the ball higher. Students will soon realize that more height on their toss gives them more time to catch the ball after one bounce (see Figure 1c). At this point the children may need help with throwing the ball up and towards the target, and then moving to the bounce of the ball, waiting for the ball to drop into their hands. However, very soon more strategic understanding needs to be taught with another spatial component question. For example,

"After you toss the ball where should you go?"

The question will focus the children's attention on thinking about what happens after the toss. A second question to help all the students to understand where to stand can then be asked,

"Where do you want the target to be after you have caught the ball?"

Then the children may answer,

"In front of me."

A further prompt from the teacher could be,  
“So where do you need to go?”  
“I want to run around behind the ball.”  
“Why?”  
“So that I can catch the ball after one bounce, then quickly toss it at the target again.”

The last three stills Figure 1 show a student throwing the ball with height (Fig. 1c), relocating to the opposite side of the target before the ball has bounced (Fig. 1d), and then safely catching the ball facing the target for the next toss (Fig. 1e).

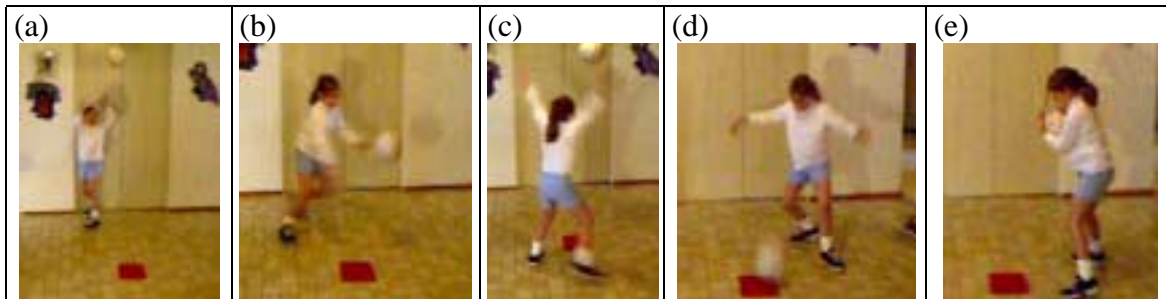


Figure 1: Stills of student playing “Toss onto target” game.

As this principle of positioning is being grasped some children may need to be reminded to toss the ball higher, often they want to throw the ball at the target with minimal height, they then become aware of how a little more force in the right direction (upwards) will give them more time to get behind the ball. As the spatial awareness component is appreciated by the children they will start to understand how positioning will give them more time to be consistent at tossing and catching the ball and therefore allow them to do more tosses as they work on getting the placement of the ball onto the target.

With grade 4 and older children using smaller balls (tennis ball size balls) this same progression is challenging. Once these children have followed the sequence of tasks, instead of catching with hands students can use a scoop to catch a ball. As they succeed at this they can be instructed on how to strike a ball using the palm of their hand and then striking with a light paddle bat. Figure 2 shows a student playing the “toss onto target game” with a scoop. Her ability to move to receive the ball before it has bounced gives her time to catch the ball. Also, this recovery movement encourages the student to use a side stepping lateral movement so important in net/wall games. When a scoop can be used effectively a student is ready for striking a ball after one bounce and keeping it going. Grade 4 children can play this game in pairs, hitting the ball alternatively, to see how many times they can hit the target.



Figure 2: Stills of student playing “toss onto target” game with a tennis ball and scoop

Once the initial tactical awareness components have been taught children would have developed an array of strategic ways of playing in net/wall games. At this point the children are ready to work with and against an opponent. The following example is a progression of tactical questions to help students develop the initial and advanced tactical awareness components against an opponent.

### ***The castle game***

The castle game is played between two or three players and for this reason is more suitable for grade 3 children (eight years of age) and older. The aim of the game is to get a tossed or struck tennis-size ball to hit a pile of four tennis-sized balls (the castle) as shown in Figure 3. Three essential rules are needed, (1) the ball must be hit up above waist height, (2) the ball must bounce, and (3) the ball must be hit alternatively. The children can decide how to start and re-start the game, what happens when the castle is hit and what happens when any of the three essential rules are broken. To help the students play, a teacher may need to modify the equipment or object. For example, players may need a larger ball and work on tossing and catching if striking a ball is too difficult. Or a teacher may need to work on the refinements for striking a ball and keeping it going after one bounce, with the students working individually first using their hands, then a light paddle bat and then playing against a wall hitting the ball high.



Figure 3: Stills of student playing “Castle” game with an opponent

When working in pairs students, as shown in Figure 3a, have a tendency to strike the ball, then stand and watch their partner play a shot. To address this lack of preparatory action the following tactical awareness questions can be asked.

“Where should you stand after you have struck a ball?”

This positioning question focuses the children’s attention on what happens after they have a struck a ball and their partner is striking the ball. As with the positioning question asked earlier, the players need to consider where the ball will go after they have hit it, but this time they need to think about what the OTHER player will do, that is where the other player will hit the ball. This question starts the development of the advanced

tactical awareness components. The aim of the game is to hit the target, therefore the answer wanted from the children is:

“I should go opposite my partner, in the line with the target.” Figure 3b and 3c shows a student moving opposite to where her partner is going to hit the ball. Notice how the lateral movement developed in the ‘toss onto target’ game has transferred into the more challenging “castle” game.

When the children realize this tactical idea they will find that they have more time to play their next shot because they are anticipating where the ball will go. With more time to play a shot the children can control the force on their shot in order to send the ball accurately towards the target. The teacher may need to work on technical refinements to help the students with waiting for the ball to drop, bat preparation, grips, hitting with forehand and backhand sides of the bat and setting up the body in preparation for striking the ball. However, with an awareness of effective positioning the children will learn to move side-ways effectively and create time for successful practicing of the technical refinements within the game. The following question will get the students to consider their own abilities and how to maximize their chances to play effectively.

“If you prefer hitting the ball on one side how should you position yourself in relation to the target?”

This SELF-question focuses the students on setting up with usually their forehand side favoured for receiving the ball. As students get confident with hitting the ball with one side of the bat, they realize the need to develop ability to hit with both sides of the bat.

Once the students are able to anticipate where their opponents will hit the ball, and can prepare effectively, the following advanced tactical awareness question develops further excitement in the game.

“If your opponent anticipates where you will hit the ball should you always hit the ball towards the target?”

Once this OTHER-question is asked, students start to hit the ball away from the target in order to move their opponent away from the target, aiming at the target only when they think their opponents are out of position or forced to hit with their less favoured side. Once students start doing this tactical play, a new rule may be needed to decide a boundary within which the ball must be hit. To help students to recover when they are out of position the teacher can remind them that if they hit the ball higher they will have more time to prepare for the next shot. All these elements create a dynamic game (see Fig. 3e) where the skills are being developed whilst playing against an opponent.

When the students consider themselves and their opponents’ options spinning the ball becomes a skill to make it more difficult to hit the ball accurately. Some students start spinning the ball as they realize how to control the ball by applying the right amount of force. This advanced skill can be developed further in game structures that have a court and a net.

### ***Conclusion and summary of progression***

The progression in the “toss onto target” game and “castle game” are both beginning games that develop strategic understanding and as the games are played with an opponent, develop tactical awareness that can be transferred into other net/wall type

games. Both of these games can be played against a wall. The target can be placed slightly away from the wall so that it can be hit after the ball rebounds off the wall. For net/wall games like badminton and volleyball where the object is not meant to bounce the same progression can be used, except the players try to prevent the object from bouncing in an area of play that they occupy.

Using the principles of play for tactical depth and the tactical awareness components for tactical breadth, the T.A.C.T.I.C. matrix in Figure 1 can be developed to summarize the strategic elements that develop tactical understanding.

Game and focus	Principle of Play depth	<i>Tactical Awareness Components for breadth</i>				
		<i>Initial</i>			<i>Advanced</i>	
		SPACE <i>Where</i>	FORCE <i>How</i>	TIME <i>When</i>	SELF	OTHER
		<i>In relation to...</i>				
<i>Toss onto target</i>  Bounce, catch then send. Co-operative then compete	Consistency ↓	Where is the biggest target area?	How hard send ball to be able to get ball to hit target?	When playing a shot can you get to next shot?	In relation to the ball move self to bounce of the ball	
	Placement & Positioning	Where is your partner's target area?	How will you apply the force to keep the ball in?	When use height to recover?	What is the area to get into to be ready for next shot?	How can you anticipate the placement of partner's shot?
<i>Castle game</i>  Bounce to hit target. Co-operative then compete	Consistency ↓	Where will the ball land?	How can you use force to control ball accuracy?	When do you hit the ball high for time to get to bounce?	In relation to target where is best place to stand?	In relation to opponent's hit where should you stand?
	Placement & Positioning ↓	Where do you go after striking the ball?	How hard hit ball and in which direction to be ready for next shot?	When will partner hit ball to target?	How can you position yourself to use your favoured side?	Can you send the ball where your opponent does not expect it to go?
	Spin & Power	Where will the ball bounce if you use spin?	How will force be applied to the ball to make it spin?	When should you spin the ball and when use power?	How well can you spin the ball and control placement?	How can you use spin to get your opponent out of position?

Figure 4: Tactical depth and breadth matrix for “Toss onto target” game and “Castle” game progressions

The cells within the matrix offer strategic elements to which the teacher can focus student attention. The matrix works as a prompt to the teacher to develop tactical awareness. The questions in each cell are only examples and more questions can be asked. As the students’ awareness grows, they will develop an array of strategic understandings that lead to tactical awareness that transfer from one net/wall game to the next. This tactical awareness allows students to realize sophisticated ways of playing within simple games that then transfers to more complex games. This tactical awareness increases students’ cognitive activity when playing games and develops an appreciation of complex tactical play in the adult games such as tennis, volleyball and squash.

The T.A.C.T.I.C. framework with the principles of play for games (Hopper, 1998) offers a systematic way to teach the tactical complexity of games in the net/wall, territory, target and batting/fielding game categories (Bell & Hopper, 1999a; Bell & Hopper, 1999b; Hopper & Bell, 1999a). By way of example this article has focused upon

the net/wall games category, future articles will show how this framework can be used for other game categories. We feel that too much focus in games teaching has been upon the technical points of isolated skills that rarely transfer into actual game play. The reason for engaging in games is not to perform a skill or to display ones physical prowess, but to use the repertoire skills one is developing to play against the structures of the game and the challenges set by an opponent. As Thorpe et al., (1986) have indicated, players that learn to play tactically will play games for the mental challenge as well as the physical exertion; they are more likely to play longer and will appreciate more the watching of games. The cognitive challenge of playing games must be broken down so that children can become intelligent players who appreciate the play of games. We feel that the T.A.C.T.I.C. framework offers teachers a way to systematically teach children how to fully play a game, as they play with tactical sophistication.

For further information and examples related to this approach visit <http://web.uvic.ca/~thopper>.

## **References**

- Bell, R., & Hopper, T. (1999a). Let's get the play back into the game . Wolfville, Nova Scotia: CAHPER '99 national conference.
- Bell, R., & Hopper, T. (1999b). A 'T.A.C.T.I.C' approach to teaching territory Games . Wolfville, Nova Scotia: CAHPER '99 national conference.
- Ellis, M. (1983). Similarities and differences in games: A system for classification: Paper presented at the AIESEP conference, Rome, Italy.
- Hopper. (1998). Teaching games for understanding using progressive principles of play. CAHPER, 27(1), 1-15.
- Hopper, T., & Bell, R. (1999). A 'T.A.C.T.I.C' approach to teaching net/wall Games . Wolfville, Nova Scotia: CAHPER '99 national conference.
- Hopper, T., & Bell, R. (1999b). Let's get the play back into the game . Wolfville, Nova Scotia: CAHPER '99 national conference.
- Mauldon, E., & Redfern, H. (1981). Games Teaching. London: Macdonald and Evans.
- Thorpe, R., Bunker, D., & Almond, L. (Eds.). (1986). Rethinking games teaching. Loughborough: University of Technology, Loughborough.
- Wall, J., & Murray, N. (1994). Children and movement. Dubuque, IA: Wm. C. Brow Publishers.
- Werner, P., & Almond, L. (1990). Models of games education. JOPERD, 61(4), 23-27.