Teaching Games for Understanding (TGfU) in primary and secondary physical education

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Abstract

Recent changes in teaching syllabuses and pedagogy have implications for practising teachers in relation to both content and teaching strategies traditionally utilised in the teaching of games. There has been a move towards a Teaching Games for Understanding (TGfU) approach over the last decade with a growing number of books, journal publications conferences and professional development workshops specifically devoted to TGfU. Teaching Games for Understanding places an emphasis on the play, where tactical and strategic problems are posed in a modified game environment, ultimately drawing upon students to make decisions. This differs from the technique-based approach that uses drills out of the context of games with the teacher/coach telling the students what to do. This paper outlines the theoretical base for the TGfU model and reviews the literature of the approach and other related theories. Practical examples will be given of the four categories of games, that is, invasion, net/court, striking/fielding, and target following three different teaching approaches (full-sided, small-sided and games for outcomes) to offer physical educators some practical examples to include in their lessons.

Introduction

The TGfU approach developed by Bunker and Thorpe (1982) places a different focus on the teaching of games to traditional, technical approaches to teaching. TGfU places the student in a game situation where tactics, decision-making, problem solving and skill is developed at the same time. Isolated skill development is only utilised when the student recognises the need for it. Other terminology and variations of TGfU approach where games are modified to suit the learner include: 'Game Sense' (den Duyn, 1997), 'Games for Understanding' (Bunker & Thorpe, 1982), 'Play Practice' (Launder, 2001) and the 'Games Concept Approach' (Wright, Fry, McNeill, Tan, Tan & Schemp, 2001, cited in Light, 2003). Modifying and adapting games is an important part of using this approach. The concept of 'modification for exaggeration' is used to emphasise particular tactical aspects of games.

When using TGfU, the development of any game follows the model presented in Figure 1.

Game
As the model indicates, learning is game-based so that there is always some form of opposition. For example, in Touch the game is played with opposition so you would utilise a game with an opponent. The students must first be capable of understanding the form of the particular game and will then recognise the problems to be solved, which are unique to that particular game.
Game Appreciation
In recognising the purpose of the game time should be given for athletes to see what the game is all about. Gradually the students should develop an understanding of the main rules that shape the game. They may learn to recognise that the height of the net affects the pace of a game; that

changing the number of fielders makes it easier or more difficult to score runs, and that changing the size of a goal or target makes it easier or more difficult to score.

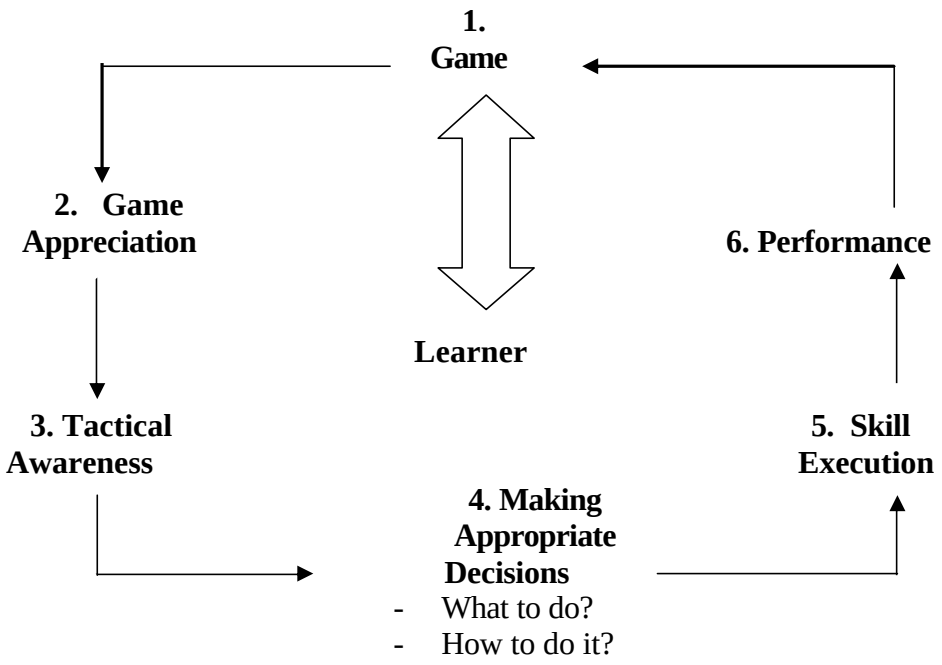

Figure 1. TGfU Model (Adapted from Werner, Thorpe & Bunker, 1996, p.29)

Tactics

Problem solving is a critical approach to teaching games for understanding. Beginners are introduced to tactics by the 'gradual introduction of movement principles, based on simple ideas of space and time' (Werner et al, 1996, p.29). The authors of the model argue that just as skills, like throwing, will transfer across games, so will tactical knowledge.

Decision Making

What to do, how to do it and when to do it - with increased appreciation of the game and tactical knowledge, students show a much greater understanding of when to pass/shoot/dribble and appreciation of the factors influencing decision making related to the execution of skills such as the position of team mates and opposition as well as time and space available.

Skill Execution and Performance

The model also emphasises skill execution and game performance, but only after the students recognises a need for a particular kind of skill. This is assessed as individually appropriate. 'When the students are ready for these skills within the context of a game, technical instruction is given, but this is always at the performance level of the children' (Werner et al, 1996, p.29). A student who recognises the value of placing a shot deep in the court or dropping it short over the net will more likely be ready to take time to learn the techniques for a clear, lob, or drop shot. When they are guarded closely in basketball, students begin to perceive appropriate times for using variations of bounce and chest passes with accompanying head and foot fakes.

The traditional skills or technique-based approach has seen the game broken down into various skills and then the learner has progressed in a model going from simple to complex skills. For the purpose of this paper the words skill based and technique based will both refer to this model although Thorpe (1996) referred to technique being performed in isolation at practice whilst skill is the performance of the technique in a game situation. The athlete is not always placed in a game situation. For example, in soccer or basketball the beginner may start by dribbling the ball by themselves. They do not have an opponent and are not in a game situation.

Categories of Games

The model can be applied to four categories to games. These categories are: Target Games, Net/Wall Games, Striking/Fielding Games and Invasion games. All games in each category have similar concepts and share similar tactical problems to be solved allowing transfer of tactical understanding across games.

Invasion Games
These are team games where the purpose is to invade the opponents territory with the aim being to score more points within the time limit than the opposing team, while endeavouring to keep their score to a minimum. A variety of sporting patterns is evident. The ball can be carried or caught across the line (e.g. rugby league, rugby union, touch), it can be thrown or shot into a target (e.g. netball, basketball, handball, lacrosse) or it can be struck with a stick or foot into a target area (e.g. hockey, soccer, Australian Rules Football).

Net and Wall Games
These are games that involve a net or a court. The aim of net/wall games is for a player or team to send an object into an opponent's court so that it cannot be played at or returned within the court boundaries. Tennis and volleyball are examples of net games. Squash and racquet ball are wall games. Net/wall games also vary according to whether the ball is allowed to bounce prior to its return.

Striking/Fielding Games
In striking/fielding games a contest develops between the fielding team and the batting team with the aim being to score more runs than the other team using the number of innings and time allowed. Examples include: cricket, softball and baseball.

Target games
The aim of a target game is to place a projectile near, or in a target in order to have the best possible score. Target games can be further analysed by classifying them as unopposed or opposed. In unopposed games (e.g. golf, archery, tenpin bowling), the accuracy of the player in relation to the target determines an individual's success. If other players are less accurate then the player will win. In opposed games (e.g. lawn bowls, bocce) the players have the opportunity to 'interfere' with the target or the opposition's ball in order to create an advantage for themselves. These sports involve up to four players per team. When playing target games, no pressure is put on the player to make a decision quickly. The limited tactical options ensure that the players are not overloaded mentally. At the same time the nature of the games allow players to practise techniques in a fun environment.

The strengths of TGfU in primary and secondary physical education

Teachers have been teaching games for many years in physical education lessons and with sporting teams. The key to success of TGfU is the questioning technique and the relevance to the student of the introduction of rules and techniques. The focus is on the student and problem solving. In addition, fun and enjoyment result due to the inclusive nature of TGfU. This approach to teaching makes very effective use of active learning in that the students are learning though playing the games. The use of questioning is a powerful method of encouraging players to analyse their actions, both individually, and as a team. Questions will generally relate to a particular tactical aspect of games. Effective phrasing of questions can also help to

guide the player to an answer, in the event that they are struggling with an activity. Age, experience and ability level of the players will affect the complexity of the questions used.

Addressing syllabus outcomes

New syllabus outcomes (Board of Studies, 2003) and quality teaching models (New South W ales, Department of Education and Training, 2003) highlight the need for students to not only participate, but also to be cognitively involved in games. In 2005, a new *Personal Development, Health and Physical Education (PDHPE) Years 7–10 Syllabus* (Board of Studies, 2003) was implemented with Year 7 and Year 9 students in New South Wales (NSW) secondary schools. One area that has undergone major changes within the syllabus has been that of the teaching of games, with the move towards a TGfU framework. This change has implications for practicing teachers in relation to both the content and teaching strategies traditionally utilised in the teaching of games. The Department for education and skills (2004) in England also highlights the importance of inclusiveness in physical education with an emphasis on teachers having a deep knowledge and understanding of effective teaching strategies with a focus on student engagement and enjoyment. Whilst TGfU is not the only pedagogical model for teaching games, it is most certainly one that can be used effectively to achieve the student outcomes.

Cognitive engagement

Research (Light, 2002, 2003; Thomas, 1997a; Turner & Martinek,1999; Werner et al,1996) indicates the strengths of the TGfU approach and the desirability of it as one of the major approaches to quality teaching of games. Light (2002) highlighted the effectiveness of TGfU for engagement and cognitive learning. Higher order thinking occurs from questioning and discussion about tactics and strategies and also 'through the intelligent movements of the body during games' (Light, 2002, p.23). Cognitive development through decision-making and tactical exploration are combined with skill development within modified games to provide meaningful contexts. Light (2002) suggests that it is difficult for some physical educators to address cognition in games. TGfU is one pedagogical approach that may assist teachers and coaches to address this issue. Light (2003) examined the response for teaching games for understanding pedagogical approach in an Australian University to Bachelor of Education students studying primary teaching. Student evaluations were generally positive indicating an increase in enjoyment, understanding and cognitive engagement in the games. In comparing games sense to skill-based teaching, Werner et al, (1996) state that…'while the teacher may be convinced that skill-based lessons are having a positive effect in that some immediate skill improvement is made, the social and skill related interactions might over time convince the youngsters of their lack of ability' (p.32). Thorpe and Bunker (1986, cited in Allison & Thorpe, 1997) argued that a skill-based approach to teaching less physically able students is likely to: '…result in a sense of failure, a lack of enjoyment, poor self-concept and subsequently inhibition of long term participation' (p.11). In contrast to this, the students who exhibited low physical and technical ability in the TGfU lessons consistently reported significantly higher and more positive scores for these same factors. 'It appears that a skills-based approach serves only to highlight, confirm and reinforce – often publicly – the pupils lack of physical ability' (Allison & Thorpe, 1997, p.12).

Inclusive practice and enjoyment

Given the decreased involvement of children in physical activity, TGfU is aimed at encouraging children to become more tactically aware and to make better decisions during the game. As well, it encourages children to begin thinking strategically about game concepts whilst developing skills within a realistic context and most importantly, having fun. Essentially by focusing on the game (not necessarily the 'full' game), players are encouraged to develop a greater understanding of the game being played. Thomas (1997b) states that the desired effect of this is 'players/students who are more tactically aware and are able to make better decisions during the game, thereby adding to their enjoyment of playing the game' (p.3). Researchers (Light, 2003; Pope, 2004) have identified how important affective experiences are in learning to play games and sport. Light and Georgakis (2005) reported on female pre-service primary teachers' experiences with TGfU which demonstrated the enjoyment, involvement and engagement of students, regardless of ability. The participant's from the study saw TGfU as a viable and realistic approach to the teaching of games.

Following TGfU workshops with PDHPE teachers in NSW, where participants were asked to identify what they perceived as the strengths of TGfU, a number of themes emerge. TGfU was found to:

- encourage a holistic approach to the teaching of games
- develop critical thinking and problem solving
- develop deep knowledge and understanding of the game
- promote high levels of participation and enjoyment for participants
- promote player centred learning and relevance of skills and tactics
- cater for varying abilities
- foster efficiency in aspects of implementation

(Webb, Pearson & McKeen, 2005).

Different teaching approaches using TGfU

When using TGfU there are three different approaches that can be used. They include the *Full Sided approach*, which for example may start with minimum rules and gradually, as appropriate to the individual group, integrate rules and techniques into the game. A *Small Sided approach* where the players commences with 1 on 1 situation and gradually build up the number of players, including 2v1, 2v2, and 3v2. A *Games for Outcomes* approach which places the emphasis on achieving certain outcomes. Using the example of Touch, games could be planned for outcomes such as line defence or attacking. All of these approaches can be applied to all games taught using the TGfU approach, including: Target Games, Net/Wall Games, Striking/Fielding and Invasion games.

The following practical examples illustrate how teachers can utilise the game centred approach in their Physical Education lessons beginning at the primary school. These practical examples will cover each category of games utilising the three approaches.

Practical examples of TGfU in action

Invasion Games

Let's now use the sport of Touch as an example for invasion games. Touch is a sport where the object of the game is to score more touchdowns than your opponents. Each team has 7 players on a 50 by 70 metre field. Modified games are available for junior players. There are 3 scenarios that can be used when using this approach. They are:

1. **The full sided approach.**

This involves starting with a minimum of 4 a side and a maximum of 7 a side playing in a minimum of a 20 metre square grid. The object of the game is to score touchdowns i.e. placing the ball on the ground to behind the scoreline. We start with minimum rules and gradually build up teaching the skills as they are needed.

Progression 1:

Start with players in their own half of the grid. Players may run with the ball, pass the ball forwards or backwards. The only rule is that if they are touched they must stop and pass the ball within 3 seconds and no kicking is allowed. If the ball hits the ground it is play on.

Progression 2:

Add the 6 touch rule and a change of possession.
Teach the class the skill effecting a touch.

Progression 3:

Add the rule of only passing backwards and offside.
Teach the basic catch and pass.

Progression 4:

Add the rollball and acting half pass.
Teach both of the above skills.

It is important to constantly challenge the students through questioning.

Questions:

What are we trying to do when we have the ball? e.g. running into space, passing into space.
What are we trying to do in defence? e.g. mark a player.

2. The small sided approach.

This is where we begin with a one on one situation and gradually build up. Launder and Piltz (1992) developed an excellent game centred approach to teaching Touch. Under a modified version of this model the types of activities to be taught would be as follows:

Activity 1: 1 versus 1

A 10 by 10 metre grid can be utilised. The object is for the ball carrier to make as many metres before being touched. Mark the spot where touched and change over. The new runner tries to get further.

Questions:

What are the best ways to beat the defender?
What must the defender do?

Activity 2: How many touches to score

Similar to activity 1 except now as soon as you are touched the attacker places the ball on the ground, and the defender retreats 5 metres. As soon as the attacker touches the ball the defender can move. How many touches does it take you to score? Change over and see if you get less touches than your partner.

Activity 3: 2 versus 1

2 attackers versus 1 defender. The object is to score touchdowns. Have 3 or 5 turns before changing attackers and defenders.
It would be appropriate now to teach the skill : the basic catch and pass.

Questions:

What are the options for the attacker to beat the defender?

What must the defender do?

Activity 4: 3 versus 1

Three attackers versus 1 defender. You may need to extend the grid to 15 metres square. When touched the attackers perform a rollball and actinghalf pass. The object is to see to score a touchdown with the least number of touches.

It would be appropriate to teach the skills of rollball, acting half pass and a basic settling pattern after they have practised and answered the problem solving questions.

The build -up would now continue and the next extensions would be 3 versus 3, 4 versus 3, 4 versus 4 etc. until the full game of 7 versus 7 is reached.

3. Games for Outcomes Approach

Here you have a specific outcome e.g. Line Defence. You then design a game to meet this outcome. All invasion games can be taught using the above three scenarios.

Net/Wall Games

Few facilities and equipment are required. Teachers can work on a grass area, tennis courts or indoors, anywhere where there is a space available. You do not necessarily need nets as a line can be drawn or cones used. Students can mark own 10 metre square courts using chalk.

Activity 1: Around the World

8 students per court. 4 at each end. A large soft ball per court. Throw the ball over the net with 2 hands and one bounce is required before the student at the other end catches and throws it back. Once thrown run around to the back of the opposite line.

Questions:

Where should you throw the ball to?

Where should you best position yourself to receive the ball?

Activity 2

In pairs on a small 5 metre court. Play a mini-game first with 1 bounce of the ball allowed and then without a bounce. Encourage students to design own rules, e.g. score when serving.

Questions:

Where should you try and throw the ball to score a point?

Where should you position yourself to receive the ball?

If a player is at the back of the court where would you throw the ball and what is the name of the throw you would use?

If the player is at the front of the court what is the name of the throw you would use?

Activity 3

Now play doubles with 4 players per court.

Question:

What are the differences between singles and doubles?

Activity 4

Introduce paddle bats and tennis balls and do the same activities above. Gradually introduce new rules and techniques, e.g. forehand drive, serving, service rules etc. The variations and extensions are endless and all could be used as games for understanding of tennis, badminton, volleyball etc. What is happening is introduction of net/court games with an understanding of what the object of the game is and then introducing techniques and rules as they are appropriate and meaningful to the students.

Striking/Fielding Games

Begin with a really simple game that young or old children can successfully participate in and then gradually add rules and techniques.

Activity 1: Throw and lineup

2 teams of 5 per game - a throwing team and a fielding team. The first thrower throws the ball anywhere in front of them and then proceeds to run to a designated point and back. A run is scored when they reach the designated point. The fielding side run and lineup behind whoever fields the ball. When all the fielding side are lined up the teacher calls stop and counts the number of runs. Everyone on the throwing team has a turn and then change over.

Questions:

Where is the best place for the thrower to throw the ball?
What happens if the thrower is caught?
Where should the fielders position themselves?
What is the safest technique to field the ball?
What is the quickest technique to field the ball?

Activity 2: Hit and lineup

As for activity 1 but now do it with a T-Ball stand so the batter strikes the ball. If you were teaching cricket you could have a Kanga cricket bat and ball placed on a Kanga tee.

Questions:

As for number 1 but add.
What is the correct technique for striking the ball? Why?

Activity 3: Hit and lineup with bases

Introduce 4 bases and gradually add softball rules and techniques.
From here you can gradually build up techniques and rules for the appropriate game e.g. softball, cricket.

Target Games

With target games begin with simple games that use a large of small ball that is rolled towards a target and then gradually add other equipment such as frisbees.

Activity 1: Target roll

In pairs. Place a target 5 metres away e.g. a witches hat, between the pairs. Practice rolling at the target. Begin with a large ball and then introduce a small ball.

Questions;

What is the best way to make sure the target is hit? Discuss the best technique when rolling a ball towards the target.

Activity 2: Multiple target roll

In groups of 4 or 5. Place a number of lines (you can use ropes) with different point values. The closest line your ball is to your score. Let each student have 3 turns.

Questions:

How hard should you roll the ball?
What techniques are required to aim the ball?

Activity 3: Frisbee throw
In pairs throwing a frisbee to land in a hoop. How many throws is required to land in the hoop?
Questions:
How hard do you need to throw the frisbee?
If it is going to left or right of the target how do you correct it?

Activity 4: Frisbee golf
Set up a mini golf course of 5 holes using hoops as the hole. Students can play the game in pairs.
Questions:
How do we determine whose turn?
Use questions from above.

The extensions from here are numerous for the introduction of bowling, golf and other target games.

Conclusion

In conclusion this paper has illustrated the theoretical framework of the TGfU approach. Following this practical examples of the approach have been shown using invasion, net/court, striking/fielding and target games. The authors encourage the use of the approach in the various settings. Whilst TGfU is not the only pedagogical model for teaching games, it is most certainly one that encapsulates the dimensions of quality teaching. It involves students in critical thinking and problem solving. The central components of the approach to teaching - student-centredness and tactical questioning – provide the teacher/coach an effective means of achieving student outcomes.

Currently, there are still many PDHPE teachers that have little knowledge of TGfU and who adopt the traditional, technique-based approach to the teaching of games (Pearson, Towns, Rowland & Webb, 2004). Given such an approach is still new for many current PDHPE teachers, the need for continuing professional development courses/workshops is paramount.

References

Allison, S., & Thorpe, R. (1997). A comparison of the effectiveness of two approaches to teaching games within physical education. A skills approach versus a games for understanding approach. *The British Journal Of Education*, Autumn, 9-13.

Board of Studies. (2003). *Personal Development, Health and Physical Education (PDHPE) Years 7–10 Syllabus.* Sydney: Board of Studies.

Bunker, D., & Thorpe, R. (1982). A model for the teaching of games in secondary schools. *Bulletin of Physical Education, 18*(1), 5-8.

den Duyn, N. (1997). *Game Sense: Developing thinking players.* Belconnen, ACT: Australian Sports Commission.

Department of education and skills. (2004). *High quality PE and sport for young people: a guide to recognising and achieving high quality PE and sport in schools and clubs.* Nottingham: DfES Publications.

Launder, A. (2001). *Play practice: The games approach to teaching and coaching sports.* Illinois: Human Kinetics.

Launder, A., & Piltz, W. (1992). An Innovative Approach to Teaching Touch, *Australian Sports Coach*, January-March 1992, 12-17.

Light, R. (2002). Engaging the body in learning: promoting cognition in games through TgfU. *ACHPER Healthy Lifestyles Journal, 49*(2), 23-26.

Light, R. (2003). The joy of learning: Emotion and learning in games through TGfU. *Journal of Physical Education New Zealand, 36*(1), 93-99.

Light, R., & Georgakis, S. (2005). Integrating theory and practice in teacher education the impact of a Game Sense unit on female pre-service primary teachers' attitudes towards teaching physical education, *Journal of Physical Education New Zealand, 38*(1), 67-82.

NSW Department of Education and Training. (2003). *Quality teaching in NSW public schools*. Sydney: Professional Support and Curriculum Directorate.

Pearson, P., Towns, J., Webb, P., & Rowland, G. (2004). Game sense online - utilising the web for the professional development of physical and health education teachers. In Light, R., Swabey, K., & Brooker, R. (Ed.) *Proceedings of the 2nd International Conference: Teaching Sport and Physical Education for Understanding (pp 62-70)*. University of Melbourne, Australia.

Pope, C. (2004). Once more with feeling: TGfU and affect. In Light, R., Swabey, K., & Brooker, R. (Ed.) *Proceedings of the 2nd International Conference: Teaching Sport and Physical Education for Understanding (pp 44-52)*. University of Melbourne, Australia.

Stirling, J., & Belk, L. (2002). Effective teaching, quality physical education and the New Zealand curriculum. *Journal of Physical Education New Zealand, 35*(1), 69-76.

Thomas, K. (1997a). Game Sense: What About Technique? *Sport educator, 9*(2): 32-35.

Thomas, K. (1997b). *Game Sense Workshops; Research Project*. Unpublished Papers: The University of Newcastle, May 1997. Undertaken for the Australian Sports Commission.

Thomas, K. (2001). *Game sense*. Unpublished paper: The University of Newcastle, February 2001.

Turner, A., & Martinek, T. (1999) An investigation into teaching games for understanding: Effects on skill, knowledge, and game play. *Research Quarterly for Exercise and Sport, 70*(3), 286.

Webb, P., Pearson, P., & McKeen, K. (2005). *A model for professional development of teaching games for understanding (TgfU) for teachers in Australia.*. Paper presented at the 3rd Teaching Games for Understanding International Conference, Hong Kong, December,2005.

Webb, P., & Thompson, C. (1998). *Developing thinking players: Game sense in coaching and teaching*. In, Sports Coach 1998: 1998 National Coaching and Officiating Conference, 25-28 November 1998, Melbourne Convention Centre, Victoria, Unpublished papers, Australian Coaching Council, Australian Sports Commission, 2, 610-613.

Werner, P., Thorpe, R., & Bunker, D. (1996). Teaching games for understanding: evolution of a model. *The Journal of Physical Education, Recreation & Dance, 67*(1), 28-33.

Other Resources

ActiveHealth Website www.activehealth.uow.edu.au *Game Sense Online.*

Australian Sports Commission. (1999). *Game Sense Cards.* Canberra: ASC.

Thompson, C. and McGovern, M. (1996). *Video Analysis.* Australian Touch Association Level 3 Assessment.