

PEER REVIEWED ARTICLE

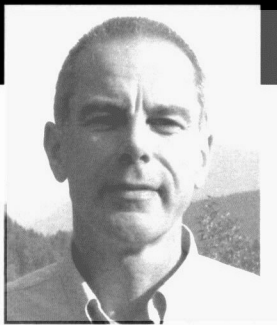
Theory to Practice: Using the Games for Understanding Approach in the Teaching of Invasion Games

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Invasion games are a common component of physical education and community sport programs. Not only are they an integral aspect of popular culture and our historical heritage, they also engage students in exciting challenges to develop valuable life skills, as well as providing lifetime active recreational choices for many citizens (Capel, 2000). Invasion games typically refer to complex and dynamic activities involving two teams who compete for one object, usually a ball, in order to advance the object into the opponents' territorial playing area in order to score a goal/points. At the same time each team protects their own goal from the opposition's advances. Soccer, basketball, rugby, hockey, and handball are some of the more popular invasion games. However, invasion games can also include other activities such as water polo, lacrosse, ultimate frisbee, capture the flag, and inventive game challenges (British Columbia Ministry of Education, Skills & Training, 1999; Department of Education and Employment, 1999). Whilst each type of invasion game presents different characteristics and challenges (e.g., rules, playing area, objectives for success), they possess common tactical elements or games principles which need to be addressed in order to enhance a team's impact. In attempting to maximize team performance, each player and the team as a whole, are confronted with problems to solve which relate to the tactical demands of that game.

Traditional approaches to the teaching of invasion games have tended to be driven by knowledge transmission with an emphasis on teacher-centred objectives, skills, drills, practices and team talks (Allison & Thorpe, 1997; Hopper & Bell, 2001; Hopper, 2002; Martens, 1997; Mitchell, Oslin, & Griffin, 1995). Whilst adopting a TGfU approach is not an entirely new concept, it does place an emphasis on developing a critical understanding and effective response to the realities and dynamics of complex and developmentally appropriate games play situations. TGfU approaches have pedagogical roots in constructivism and situated learning (Grehaigne,

Richard & Griffin, 2005; Bell & Hopper, 2003; Hopper, 2002; Hubball & Robertson, 2004; Mandigo & Holt, 2004; Streat & Holt, 2000). In an invasion games context, TGfU provides an alternative approach to student learning since it focuses on the interactions with other teammates in a learning community; the game setting provides cues that are critical to cognitive processing; and it incorporates the students' developmental needs, ideas and game context into the learning experience. TGfU is viewed as an individual and social contextual process (Hansman, 2001; Lave & Wenger, 1991; Wenger, 1998).

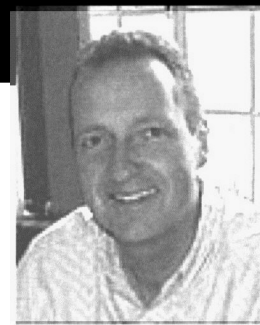


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TGfU draws upon a wide range of learning strategies (e.g., critical thinking, interpersonal communications, reflective analysis, goal-setting, co-operative learning, experiential participation, problem-solving) in invasion game contexts and draws upon a range of processes for individual players. Helping

students to understand and to develop game-based skills and strategies can enable students to transfer their learning from one invasion game challenge to the next. Furthermore, learning outcomes (e.g. critical thinking, responsible use of ethical principles, problem-solving skills) are responsive to students' needs and

circumstances in the games education context and are assessable, transferable, and relevant to their lives as young citizens in a diverse world.

To facilitate TGfU in an invasion games program requires therefore, PE teachers to shape a positive and responsive learning

Teaching Games for Understanding (TGfU) approaches have made significant contributions to students' learning in invasion game contexts within a wide range of physical and sports education programs. In attempting to maximize team performance in invasion games, each player and the team as a whole is confronted with problems to solve, the nature of which will be dependent on variables such as opponents' tactics, the score at the time, perceived strengths and weaknesses in both teams and possibly even the weather. Traditional approaches to the teaching of invasion games within PE and community sports programs have tended to focus on technical skills development. In contrast, TGfU approach places emphasis on developing critical understanding of and effective responses to, the dynamics of a variety of games play situations. TGfU draws upon a wide range of learning strategies (e.g. critical thinking, interpersonal communications, reflective analysis, goal-setting, co-operative learning, experiential participation, problem-solving) in invasion game contexts and relies upon both practical and cognitive abilities of individual players. Helping students to understand and to develop game-based skills and strategies can enable students to transfer their learning from one invasion game challenge to the next and using a player-centred teaching method the teacher is offering the learner a degree of guided autonomy which, if handled carefully, can produce greater understanding and a more enjoyable games experience. This article examines the application of the TGfU approach when covering concepts, principles and strategies in invasion games. Practical strategies are drawn from teacher education, physical education and sports education contexts and include small-sided game development and analysis, developing effective team offensive and defensive strategies using effective questioning strategies.

Les approches axées sur Teaching Games for Understanding (TGfU) ont grandement contribué à l'apprentissage des élèves par le biais des jeux d'invasion organisés dans le cadre d'une gamme élargie de programmes d'éducation physique et de sports. En vue de maximiser le rendement de l'équipe au niveau des jeux d'invasion, chaque joueur, et l'équipe entière, sont appelés à régler une série de problèmes dont la nature dépend de diverses variables, comme les tactiques de l'adversaire, le pointage actuel, les forces et faiblesses de chaque équipe, voire la température. Les approches pédagogiques traditionnelles servant aux jeux d'invasion organisés dans le cadre des programmes d'éducation physique et des programmes de sport communautaire tendent à mettre l'accent sur le perfectionnement des habiletés techniques. Par contre, l'approche TGfU mise sur une compréhension critique et des réactions efficaces aux dynamiques de diverses situations de jeu. TGfU fait appel à un large éventail de stratégies d'apprentissage (p. ex., la pensée critique, la communication interpersonnelle, l'analyse réflexive, l'établissement de buts, l'apprentissage coopératif, la participation expérientielle, la résolution de problèmes) dans des contextes de jeux d'invasion et exploite à bon escient les aptitudes pratiques et cognitives de chaque joueur. Le fait d'aider les élèves à comprendre et mettre au point des compétences et stratégies axées sur le jeu permet aux élèves de transférer leurs apprentissages d'un jeu d'invasion à l'autre. Le recours à une méthode d'enseignement axée sur le joueur permet à l'enseignant d'offrir à l'apprenant un degré d'autonomie dirigée qui, si utilisée avec doigté, favorise une meilleure compréhension et des expériences plus agréables face au jeu. Cet article examine l'application de l'approche TGfU aux concepts, principes et stratégies qui sous-tendent les jeux d'invasion. Les stratégies pratiques découlent de contextes d'apprentissage par les enseignants, par l'éducation physique et par le sport, y compris le développement et l'analyse de petits jeux, ainsi que la mise au point de stratégies d'équipe offensives et défensives grâce aux stratégies de questionnement efficaces.

environment with appropriate activities, and to utilise their knowledge and expertise to guide and help students in making key decisions and to respond effectively to a variety of sometimes complex game situations (e.g. offence and defence strategies, tactical team play, set-pieces, individual sending/receiving decisions). Selecting an appropriate teaching style is central to this process. It is recognised that a number of teaching styles can offer students the opportunity to be involved in hypothesising, synthesising and problem solving and engaging students in these teaching styles can enhance aspects of students learning and enjoyment (Mawer, 1995; Mosston & Ashworth 1986;). By adopting these teaching styles and offering the learner the opportunity to make decisions the learner's understanding of games play will develop. Furthermore, a range of teaching styles will enhance inclusion of all students in a games physical education context.

Effective use of the TGfU approach in Invasion Games

The specific needs and circumstances of the learning context (e.g., PE games unit, school or community sports program etc.) should be taken into account when planning TGfU sessions. Thus, teachers should first conduct a prior learning assessment of the learners' abilities, goals, and PE lesson/coaching context. This can be achieved in various ways including: student worksheet reflections pertaining to motives and goals for participation, class and small group discussions, teacher's observations of students' strengths and weaknesses during team offence and defence games, as well as available facilities and equipment (Hubball, 2006). Next, teachers should introduce and prepare students for TGfU processes and, therefore, frame student learning expectations (e.g. teamwork, communications, data collection, problem definition, decision-making, planning and goal-setting, active performance, and reflective analysis) in order that they can succeed and maximize learning in invasion games.

There are a variety of specific strategies for TGfU in an invasion games setting. Four central strategies will be presented which have been drawn from teacher education, physical education and sports education contexts: (1) small-sided game development and analysis, (2) developing effective team offence and defence strategies, (3) inventive games, and (4) effective questioning strategies. Appendix 1. shows a detailed example of TGfU in an invasion game practice.

(1) Small-sided Game Development and Analysis

Progressive and challenging small-sided game development and analysis (e.g. 2 vs. 1, 3 vs. 2, 4 vs. 4, 6 vs. 6, and half-field offense versus defense) are an excellent and authentic way of enhancing learning in an invasion game context. Small-sided games are more intense, involve more touches with the ball, less complex in terms of decision-making and easier for students to analyse. The development of skills and strategies necessary for improvement can be decided upon in relation to roles within the offensive team (ball carrier and non-ball carriers) and the defensive team (Hubball & Robertson, 2004). Of similar importance, is the notion that small-sided invasion games should require students to provide input regarding: i) initial game planning (e.g., communicating specific roles, teamwork, offense and defense strategies); ii) periodic performance analysis; and, iii) suggestions about specific goals for further improvements (e.g. more calling for the ball and off-the-ball movement into space, practice first-touch ball control skills, attend to speed and penetration in offense). Finally, students should be engaged in an overall class debrief upon completion of small-sided invasion games in order to reinforce effective team offence and defence strategies, as well as identify areas of transfer and further investigations. Thus, students are expected to take an active role in this process by thinking like coaches, whilst still enjoying the intrinsic benefits of learning [experientially] through games play (Light & Fawns, 2003). This time for reflection could effectively be conducted

in the form of a question and answer session where players are given time to reflect on questions and give considered answers (e.g. "Can you offer me one or more adaptations to your team's defending which may lead to a reduction in goals conceded in your next game?")

(2) Developing Effective Team Offence and Defence Strategies

All too often, invasion game practices can be over filled with drills and ball skill practice at the expense of allocating adequate time to develop effective team strategies and reflection in the context of the game (Allison & Thorpe, 1997). Effective teamwork in invasion games does not just happen through a motivational team talk, wearing the same team jersey, or by the innate and natural effort and abilities of a group of players. Essentially, players need to develop effective team offence and defence strategies through carefully guided and progressive practice conditions that closely simulate the game environment. Therefore teachers would help players develop traditional ball skills such as control, passing, dribbling, shooting, etc. in an authentic way. Various frameworks have been presented in the literature for developing effective team offence and defence strategies (Grehaigue, Godbout, & Bouthier, 1999; Wilson, 2002). These strategies are adaptable to a wide range of invasion games. For example, adopting and executing strategic positional formations and responsibilities; focusing—"reading" and responding to the game; asserting your team's influence on the "tone" of the game; exercising leadership and communication throughout the game; and, playing with impact...making it happen (Hubball, 2006). Effective teamwork is certainly challenging for even the best players, teams, and teachers/coaches. However, when a team does get it right, teammates connect in highly skilled, clever (often subtle), and complimentary ways (Earles & Chase, 2001). Effective teamwork is truly evident when the "sum of the whole far exceeds the sum of the individual parts." PE teachers should be sensitive to providing opportunities for

students to experience different positions on a team in order to better understand the important team roles held at each position and how those roles interact. Players who usually stand out in a games situation are the ones who are both technically gifted and cognitively astute in their decision-making processes.

(3) Inventive Games

Inventive games are an excellent way to stimulate creativity and student leadership (Rink, 2002). Inventive games, however, can be overwhelming for students initially unless they are introduced to inventive game principles in progressive ways, from simple to complex. For example, a small group of students can be asked to develop one or two modifications to an existing invasion

(4) Effective Questioning Strategies

Whilst structuring appropriate practice conditions and developing players' analytical and decision-making skills through TGfU activities is crucial, a central component of the teacher's role is the ability to ask "good" questions that facilitate a guided-discovery learning methodology. Effective questioning techniques can provide critical teacher interventions to help students' progress with TGfU (Hopper, 2002; Hubball & Robertson, 2004). Depending upon the particular game issue being examined, questioning strategies, using Bloom's taxonomy, can range from simple (knowledge recall) to complex (evaluation of performance strengths and weaknesses) for enhancing critical understandings and effective responses to complex game

individuals or groups to formulate thoughtful responses.

Other related TGfU strategies in an invasion game context include peer-teaching modules, the use of video technology and the development of student portfolios. Peer-teaching modules encourage students to adopt a significant leadership role and think like coaches, gather relevant data, and investigate and assess team offence and defence strategies from a different perspective. The use of video technology is a very effective method for students to repeatedly analyze team offence and defence strategies in particular invasion game situations. Student portfolios with various worksheets are a valuable resource for students to document their progress, observations and reflections pertaining to their critical understandings and responses to invasion games practice.

A teacher might complete the debrief at the end of the game by asking students to suggest subsequent practices that might improve the quality of team plays or skills during these games.

game. Activity modification, for example, can take several forms including rules, number of players and teams, playing area, equipment type and quantity, and goal area(s) to score. In more complex forms, a group of students can be given a limited range of equipment with the expectation that they develop an invasion game with the specific criteria (e.g. clear game objective, identify strategies for success, identify safety features of the game, all participants need to be actively involved, the game has to flow and be fun, the game has to have a start and finish strategy). Inventive games also help students to appreciate how rules enhance equity and positive behavior; they help students to appreciate the view points of others, to compromise and to negotiate conflict in constructive ways. Furthermore, when groups of students are required to create and share new or variations of invasion games with their peers and how to play their game(s), it invites additional fun challenges, feedback for modifications, and higher order learning opportunities.

situations at various stages of the TGfU process. For example, during a small-sided invasion game, a coach may stop or "freeze" the play and ask a specific team, "What sort of team plays are being made?" (patterns), "Why are these happening?" (cause and effect), "What do you think is good about it?" (judgments), "What could be done better?" (judgments), "How could we practice to improve this aspect of team play?" (developmental). Clearly, it's not just the specific questions that are asked but also the way that the questions are asked. Within a classroom culture, inquiry is critical (e.g., ask open-ended success-based questions that avoid Yes/No responses; encourage students to generate questions and discuss suggestions among themselves). A hierarchy of planned questions based upon set learning objectives are therefore pivotal to the success of TGfU as a teaching method (Richard, & Godbout, 2000). A learning environment of emotional safety needs to be created where every member of the group are confident to answer without fear of ridicule and the teacher allows time for

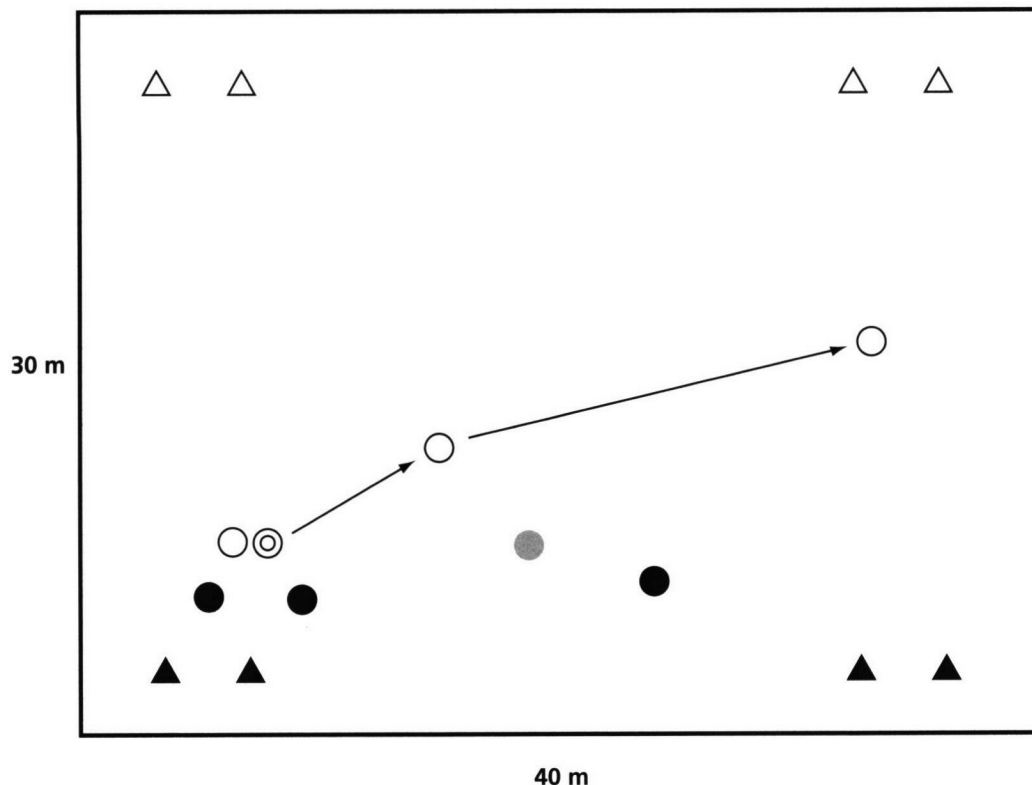
Issues for Consideration

By drawing upon a range of appropriate learning strategies, TGfU has the potential to enhance learning in invasion games. It is important for teachers to note that if TGfU is a very new approach to your student program, then it is best not to try to introduce too much to your players all at once and it is necessary to have realistic expectations. For example, in a small-sided game activity, this might include requiring students to formulate a team plan prior to the start of a game, stopping the game after 5-10 minutes to ask a series of 2-3 questions, then requiring each team to re-assess their team plan before continuing. Finally at the end of the first half of play, ask the teams to assess and share their progress before going into the second half of the game, and then repeat the process. A teacher might complete the debrief at the end of the game by asking students to suggest subsequent practices that might improve the quality of team plays or skills during these games. See Figure 1 and 2 for TGfU examples.

However, TGfU strategies should not be used at the exclusion of skills development

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Figure 1: The 4 Goal Game



The 4 Goal game description: 3 v 3 plus an optional floating player (in grey) who plays for the team in possession and cannot score or be tackled. Inclusion of this floating player will be at the coach's discretion depending on the players' technical level. Each team defends two goals and can score by passing the ball through either of their opponents' goals. As the players become more adept then progress by removing the floating player.

Switching Play in Soccer.

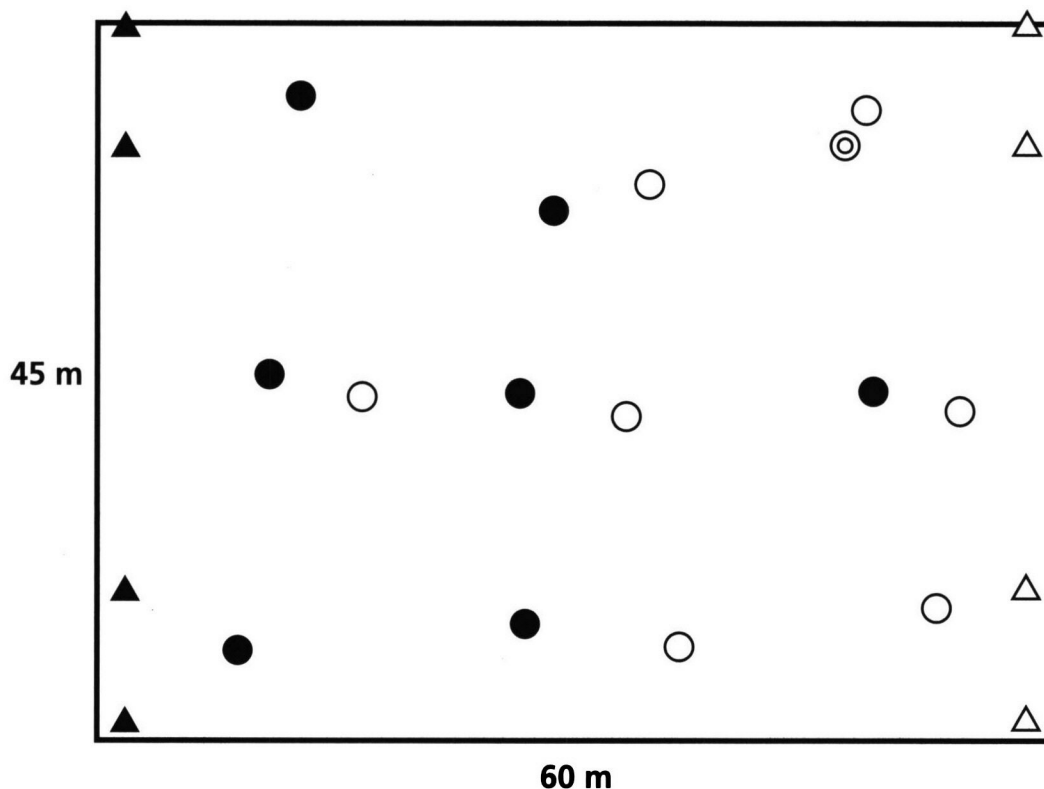
Learning Objectives:

1. Select and apply the appropriate time to change the direction of attack.
2. Acquire and develop relevant skills for changing the direction of attack in a game.

Key Questions for the teacher to ask in hierarchical order with possible answers:

- a) When should you decide to change the direction of attack?
 - When there is pressure on the ball and I cannot go forward
 - When space is occupied by defenders on that side of the field
 - When space has been created on the opposite side of the field
 - b) What is the most effective way for your team to exploit the space on the opposite flank?
 - Turn with the ball and get the ball there as quickly as possible.
 - c) Does that mean a long cross field pass?
 - Sometimes but only when that is feasible without giving possession away. Otherwise it may mean playing using 2/3 passes.
 - d) So how can my team mates assist in that situation? Where should they support?
 - The nearest player can support on the diagonal behind
 - The other player moves outside him/her ready for the switch.
 - e) Who can show me the angle and distance of the first supporting player?
 - They stand 8-10 yards away diagonally behind.
- And what do you do when you get the ball to your player on the opposite flank?
- Attack the goal and get other players over there to support.

Figure 2: Half Pitch Corner Game



Half Pitch Corner Game description: 7 v 7 with both teams given a 3.3.1 formation. Goals again set in each corner but 8 yards wide. Both teams try to manoeuvre the ball so that they are able to run the ball through either of the opponents' goals.

Key Questions for the teacher/coach in hierarchical order with possible answers:

Switch play again quickly

- Does switching play only apply to the attacking players?
 - No, defenders, midfielders and even the goalkeeper can do it.
- Who can show me some techniques that be used to turn in order to switch play?
 - Use outside of the boot to hook ball in a 180 degree turn, Step-over Turn, Cruyff.
- What is important about executing these turns in the game?
 - They need to be fast, slick and disguised.
- Can anybody show me how I might receive a crossfield switch pass?
 - Look over the shoulder as the ball is travelling, open body shape, receive on the back foot with the first touch then move it on.

As the group become familiar with the idea of penetrating forward where possible or switching play when a forward pass is not possible then the teacher's interventions decrease in frequency i.e. you give the players less guidance and they learn more for themselves. It is important to get the balance of player activity and coach questioning correct. Towards the end of the session the teacher may only pick up occasionally on errors and ask, "What decision could you have taken (or technique could you have used) there? Why?" If they give you the correct answers you know the session has affected their understanding. Ending with a plenary consisting of questioning will help consolidate learning.

for effective learning in invasion games. Aspects of motor development remain an important aspect of development for games players. Problems with the TGfU approach can arise from poor implementation or inappropriate use of teaching styles. To implement effective TGfU strategies, a teacher requires an eclectic range of progressive questioning (e.g., lower to higher-order) and facilitation (teacher-centred to student-centred) techniques to enhance players' decision-making skills with respect to complex invasion game situations. In addition, teachers need to carefully plan progressively challenging activities, and select critical and timely interventions that challenge understandings and enhance

learning. The theme or "problem" is highlighted through the choice of appropriate modified games, a hierarchy of relevant questions are planned and a guided discovery teaching style is adopted (Figure 1 and 2). The additional time required of both teachers and individual students to engage in TGfU can, therefore, be a limitation but if the essential elements are there, it can be a rewarding experience for teacher and student alike.

Summary

TGfU approaches have made significant contributions to developing students' critical understandings and effective responses to the realities and dynamics of complex invasion game situations within a

wide range of physical education contexts. Practical strategies include small-sided game development and analysis, developing effective team offence and defence strategies, inventive games, and effective questioning strategies. Essentially, TGfU organises the teaching of invasion games programs around issues relevant to the team/students; ensures that the practice environment closely simulates the invasion game context; engages students as stakeholders in the learning process; and enhances the development of positive learning outcomes such as critical thinking, problem-solving, decision-making, better understanding of tactical knowledge, leadership and interpersonal skills, and more enjoyment of the games experience. ■

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