



TGfU...Simply Good Pedagogy:

Understanding a Complex Challenge



Tim F. Hopper, Joy Butler and Brian Storey — Editors





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Glossary of Terms

Below we have key terms listed, selected by the authors in this book, to define and clarify meaning. These definitions were created through an on-line Wikispace.com forum designed to allow collaborative additions and edits to each definition. As such, the definitions are not fixed but rather presented as guides to how the author intended the terms to be used. The definitions and in some cases sources will help you as a reader to apply a richer understanding to the diverse concepts being explained.

Action systems: Refers to the human movement system and its interrelated behaviour to the environment.

Adaptation: This refers to an evolutionary concept where an organism, based on natural selection, has achieved greater fitness to environmental conditions. Adaptation is the changes in living organisms that allow them to live successfully in an environment. Adaptation can be structural, behavioral or physiological and can be applied to how a learner adapts to the conditions for learning created by a teacher and other students.

Aim of the game: The most important movement problem in a game that children have to solve.

Ambient vision: The visual system that people use to detect the orientation of their body in the environment: It is unconscious, takes in all of the visual field, and is suited for movement control (Schmidt, et al., 2004)

Attention control: Accomplished performers are not only able to sustain attention for longer periods, but are also

adept at identifying and attending to those cues that are most essential to successful performance (Schmidt, et al. 2004)

Augmented feedback: Extrinsic information such as knowledge of results or performance that supports the feedback that is available intrinsically to the performer.

Benchmarks: Various criteria exemplified by Metzler (2005a) in order to verify instructional processes or assess student learning across the three domains of learning (psychomotor, cognitive and affective) when using 'Models of Instruction' such as Teaching Games for Understanding.

Blocked and constant practice: Combination of the practice sequence in which individuals repeatedly rehearse the same task and in which people rehearse only one variation of a given class of tasks during a session (Schmidt, et al., 2004).

Clear Line: Line that must be crossed by the defensive team before they become offense.

Coach as a player: the instructor joining in to the game form to enhance the learning of the strategic and tactical aspects of game play.

Complexity thinking: Complexity thinking focuses on adaptive, self-organizing systems where learning emerges from experiences that trigger transformations in learners. Complexity thinking is not seen as an alternative to other discourses on learning, but rather as a discourse that arises among others. For more information on complexity theory

that informs complexity thinking (Davis and Sumara, 2006) (see http://en.wikipedia.org/wiki/Complexity_theory).

Constrained discovery learning: A guided discovery approach where exploration and discovery of movement solutions is bounded by the constraints of the task.

Constraints: Boundaries or features that shape the behavior of a learner seeking stable movement patterns to achieve a specific task goal.

Contextualism: Contextualists view knowledge as having practical sense within a socio-cultural situation (e.g., setting, culture) and emphasize that standards for reality or truth can and must be negotiated and justified through dialogue (Schraw & Olafson, 2002).

Coupled: Description of two closely related components in a system.

Cutting: Moving into open space.

Decision-making: The process of selecting the appropriate movement response from a range of possibilities (Abernethy, 1996).

Defense in block: The defense is in “block” when it is positioned between the ball holder, the attackers and its own goal.

Defense is in pursuit. The defense is in “pursuit” when it is positioned behind the ball holder and the attackers with reference to its goal (Gréhaigne & Godbout, 1995).

Developmentally Appropriate Activities: Activities presented by a teacher/coach when a player is physically, cognitively and/or emotionally ready to handle the challenge.

Diagonal dividing line: Line that separates a playing field into two parts for the tag players.

Differential Learning process: A learning process that has been proposed to incorporate high levels of variety in movement generation in order for learners to challenge exploration of functional movement solutions in the context of practice.

Double Team: Two defenders moving together to put pressure on the offensive player with the ball to force a turnover.

Ecological psychology: Study of human-environment and animal-environment relations where reciprocal interactions are emphasized. In this approach animals and humans are considered as standing in a ‘systems’ in relation to the environment, such that, to fully explain some behaviour it was necessary to study the environment in which this behaviour took place.

Effective play-space (EP-S): The effective (occupied) play-space (EP-S) may be defined as the polygonal area that one obtains by drawing a line that links all involved players located at the periphery of the play at a given instant.

Emergence: This concept refers to how complex systems and patterns arise from multiple possibilities in relatively simple interactions. For example, consider the tactical complexity in a tennis game that arises from the simple idea of keeping the ball in the court more often than your opponent. Emergence is associated with the properties of a system but is also co-determined by context and how the system engages in the context.

Enhancing play: The concept of “enhancing play” is to “enhance player commitment and performance by presenting challenges” (Lauder, 2001; p. 57). This can be operationalized by using time constraints in games, handicapping individuals or teams, using a differential scoring procedure, using “tactical time-outs” and/or using Lauder’s concept of “Action Fantasy Games”.

Epistemological beliefs: A paradigm of personal epistemology research in educational psychology emphasizing four main dimensions (beliefs) about epistemology: the simplicity (isolated or interrelated), stability (factual and certain or evolving), and source (derived from experts or constructed) of knowledge and the speed (occurs quickly or not at all) of knowledge acquisition (Schommer, 1993).

Epistemological worldviews: This is a belief system about knowledge and has ramifications on one’s views about how knowledge, learning, teaching, and assessment should occur. The three main general epistemological worldviews are realism, relativism, and contextualism (Schraw & Olafson, 2002).

Epistemology: Epistemology is the study of knowledge and how one knows. More specifically, it involves the analysis of individual’s views of what knowledge is, where it originates, if and how it changes, how it is explained and justified, and how these beliefs influence learning and cognition (Hofer & Pintrich, 2002).

Focusing play: Teachers would “focus play” by teaching “in the game” (Lauder, 2001; p.57). For example, in racquet sports, teachers might encourage students to read and anticipate the play of an opponent by looking for relevant cues from their opponent when s/he plays a shot (i.e. body shape, stance, contact point on the ball, movement after a stroke, racquet head shape, etc.). Another form of focusing play would be any instance when teachers offer cues/prompts to aid students in recognizing where to position themselves, or where to aim the next shot while in game play.

Freeze replays: The teacher stops or freezes the play at a ‘teachable moment’ and uses a questioning protocol to facilitate student’s tactical understanding (Turner, 2005, p.84).

Functional actions: Goal directed movements that accomplish an outcome.

Game form: A version of the full game usually played in a representative or exaggerated form (Turner, 2005, p.75).

Game Performance: A concept proposed by Griffin, Mitchell and Oslin (1997) for considering players’ game play as based on making decisions, moving appropriately and executing skills. They propose that game performance (GP) is equal to tactical awareness (TA - reflected by off-the ball movements in relation to appropriate decision making) with skill selection (SS) plus skill execution (SE). Therefore game performance can be represented by the formula $GP = TA + (SS + SE)$.

Game-play: This concept refers to a player being engrossed in the game, where play implies engagement in an environment that is dynamic and flowing, where there are infinite possibilities, a to and fro process, and limits provided by the structure or rules of the game. Game-play requires attention to both process and outcome of the game and highlights the inherent complexity of learning to play a game.

Games Literacy: Engage with poise, confidence, and enthusiasm in a wide range of games (Mandigo & Holt, 2004).

Give and Go: An offensive move during a territorial game when the ball carrier passes to a teammate then runs into an open passing lane to quickly receive the ball back.

Goal-directed movements: Movements that are functional in meeting the relevant task goal in a performance context.

Inherent anchoring: Invariant features that are omnipresent in the performance environment that help guide the generation of a successful action in a game.

Initial game form: A version of the full game that is played at the beginning of a TGfU session to stimulate players thinking about tactical ideas and tactical solutions to game problems. Usually played in a representative or exaggerated form (Turner, 2005, p.75).

Interactive teaching techniques: Teacher and students share making decisions about content, managerial control of the lesson, instructional interactions, task progressions, etc. (Metzler, 2005b; p. 38).

Intrinsic motivation: When the participant is self-determined and is inspired by the inherent pleasure of the activity, the person is intrinsically motivated.

Introductory game: Game with basic rules that is feasible for all levels of ability.

Learning system: Referred to as the individual movement system in a learning environment.

Liberating constraints: Sometimes also referred to as enabling-constraints, this concept refers to the idea of enabling possibilities while limiting choice. As described by Davis, Sumara and Luce-Kaplar (2008) “Some constraints are dictated by context, others by the structures of the unities, still others arise in the co-actions of agents. The common feature of these constraints is that they are not prescriptive (i.e., they don’t dictate what must be done), but expansive (i.e., they indicate what might be done, in part by indicating what must not be done)” (p. 193). Modified games (representational and exaggeration) in TGfU practice represent an example of liberating constraints.

Life Skill Education: A combination of learning experiences that aim to develop not only knowledge and attitudes, but also skills (i.e., Life Skills) which are needed to make decisions and take positive actions to change behaviors and environments (UNICEF 2008).

Life Skills: A large group of psycho-social and interpersonal skills which can help people make informed decisions, communicate effectively, and develop coping and self-management that may help them (children) lead a healthy and productive life (UNICEF 2008).

Modification exaggeration: Modifying certain aspects of the game to allow learning of specific tactics i.e. modifying rules, the size and shape of the playing areas, altering the number and size of the goals used, restricting players to certain zones of the field, altering the offence-defense ratio, etc. (Werner et al., 1996).

Modification representation: Small-sided versions of games which contain the tactical structures of the official game but are played with adaptations to suit the children's size, age and ability, (i.e. number of players, field size, type of equipment used) (Werner et al., 1996).

Muscle memory - A phrase referring to the nervous system's ability to memorize or perform a task automatically.

Neurobiological systems: Human movement system that encompasses the neural and biological subsystems

Neutral Player: An added player either on offense or defense to produce an advantage over the other team (e.g. 5 offensive players versus 4 defensive players) to help explore tactical problems during practice.

Nonlinear Pedagogy: A theoretical framework that views learners as complex organisms that can change suddenly in a fashion that is difficult to predict. It advocates that the observed properties of dynamical human movement systems form the basis of a principled pedagogical framework. In particular, nonlinear pedagogy advocates the manipulation of key constraints on learners during practice.

Off-the-Ball Defensive Player: Any defensive player who is covering offensive players without the ball.

Off-the-Ball Offensive Player: Any offensive player who does not have possession of the ball.

Off-the-ball skills: Skills required for effective game performance that are developed when a team-mate or the opposition is in possession or is hitting the ball /shuttle. In soccer these may be skills such as cutting into open space to support the ball carrier in attack, or guarding and marking, covering, and adjusting when in defense.

On-the-Ball Defensive Player: The defensive player who is marking the offensive player with the ball.

On-the-Ball Offensive Player: The offensive player who has possession of the ball.

Open Passing Lanes: When the direct line from one offensive player to another is not blocked by an opponent.

Open-Ended Questions: Questions that have multiple answers and require more in-depth responses.

Optimal movement patterns: A perceived 'correct' movement pattern that should be modeled as the ideal movement form.

Organized situation: A game situation in which rules, regulations and tactical decisions are simplified and so easier to learn.

Parent phase of the play: The initial organization of game play is embedded in all others that will follow. The logic of the initial organization of game play will be referred to as the "parent phase of the play", leading to other actions.

Parameterizing: Functional refinement and adjustment of movement to the specific needs of the performance context.

Passing Lane: The direct line between two players on the same team.

Percent of Maximum Possible score (POMP): Linear transformation of questionnaire response scores that is performed in order to provide a more comprehensive presentation in the changes in the subscale scores across sessions. $POMP = [(observed - minimum)/(maximum - minimum)] \times 100$, where observed = the observed score for a single case, minimum = the minimum possible score on the scale, and maximum = the maximum possible score on the scale (Cohen, Cohen, Aiken, & West, 1999, p. 333). For example, on a 1-4 likert scale a response of '1' to an item yielded a POMP score of 0%, a response of '2' to an item

yielded a POMP score of 33.33%, a response of '3' to an item yielded a POMP score of 66.67%, and finally, a response of '4' to an item yielded a POMP score of 100%. How close these scores come to this meaning depends (among other things) on appropriate sampling from the content domain (Cohen, Cohen, Aiken, & West, 1999, p. 333).

Perception-action coupling: This concept is drawn from motor learning research and refers to the understanding that perception and action processes are functionally intertwined: perception is a means to action and action is a means to perception. Each action leaves a perceptual memory that can be called upon in future actions to develop anticipation. Also, watching an action performed by another person facilitates the later reproduction of that action in the observer.

Perceptual information: Any sensory information (e.g., visual, auditory or tactile) available from the environment.

Performance disruption and de-atomization: The change in control of human movement to processes that discourages self-adjustment or non-conscious control.

Perturbations: an event, object or action external to the learner that disrupts the stability of human movement.

Physical literacy: The motivation, confidence, physical competence, understanding and knowledge to maintain physical activity at an individually appropriate level throughout life (Whitehead, 2007).

Player-Centered Activity: Emphasis is on letting the players reach conclusions and solve situations as they arise in the game.

Principle of transfer: The amount of transfer is small and positive unless the tasks are practically identical and the amount of the transfer depends on the "similarity" between two tasks (Schmidt and Lee, 2005)

Prototypic configuration: The prototypic configurations represent the fundamental configurations of game play for that team sport.

Questioning: Asking questions about 'what', 'where', 'when', 'how', 'with whom' which are synonymous with issues of time, space, risk / safety to facilitate students' tactical understanding (Turner, 2005, p82).

Random and varied practice – Combination of the practice sequence in which individuals perform a number of different tasks in no particular order avoiding or minimizing consecutive repetitions of any single task and in which performers rehearse a number of variations of a given class of task during a session (Schmidt, et al., 2004)

Random variability: Variability in movement patterns with no structure to allow the attainment of a task outcome.

Realism: Realists tend to view knowledge as real, objective (e.g., factual), and unchanging and can be mastered by experts (Schraw & Olafson, 2002).

Regulatory information: Specifying information that is pertinent for the control of movement.

Relativism: Relativists tend to espouse knowledge as highly subjective, evolving, and unknowable beyond the individual mind (Schraw & Olafson, 2002).

Repetition without repetition: Repeating the outcome without necessarily repeating the process to achieve the outcome.

Sandbox: A virtual testing area where players can try things out without experiencing the negative consequences of an inappropriate action. This term refers to the bounded constraints placed on players in a game (typically a video-game) that limit their options and reduce challenges, allowing them to develop skills that create more in-depth understanding of how to play within the game rules, enabling more advanced play later in the game.

Savvy Off-the-Ball Players: Players who are able to make suitable decisions about a situation within a game and act appropriately depending on the movements of opponents and teammates.

Scaffolding: Educational/Instructional scaffolding refers to providing supports to promote learning when novel concepts and skills are being introduced to students (Vygotsky, 1978). In wikis, scaffolds are offered by providing students with scripts to guide their research and aid the learning process. In addition, wiki scaffolding refers to building on each others' ideas as a form of collaboration.

Screens/Picks: When one offensive player stands in a position so a teammate can run a defender into the stationary teammate to become free.

Self-organizing: This is a process where a system (i.e., population of people, flock of birds, weather pattern, a person) adapts by combining elements and rejecting other elements of its internal organization without being guided by an outside source. This process tends to be a spontaneous, bottom-up process by which biological systems structurally couple elements of the system to address the demands of a situation. A concept often associated with the emergent properties of a system, though this is not always the case (Davis, 2004).

Self-report: Any method of gathering data in which the users reports what happened to themselves.

Semiotics: The study of symbols and signs. As a discipline semiotics is characterized by structuralist and post-structuralist theories that focus on sign processes, or signification and communication, signs and symbols, both individually and grouped in systems. It includes the study of how meaning is constructed and understood based on sign systems such as language systems and how they affect experience and human thinking.

Shaping play: Shaping play occurs when rules are modified, the size and shape of the playing area is adapted, the conditions of the game are changed, targets are changed and equipment is modified (Lauder, 2001; p. 56).

Simple Integration of Games Knowledge (SIK): The epistemological belief that knowledge about games is isolated from other knowledge hence there is little need for integrating that knowledge across various games, alternate forms of movement like dance, gymnastics or fitness, or with prior knowledge.

Skilled performance: knowing when and where to utilize and apply the techniques of the game.

Sport Specific Skill: Movement done in the context of a game.

Stable Expert Games Knowledge (SEK): The epistemological belief that games knowledge is relatively unchanging, factual, comes from sources like experts or textbooks and should not be questioned.

Strategies and tactics: Grehaigne et al. (1999) has discussed how strategy and tactics are linked in team sports. The fundamental difference between the terms is that strategies tend to be based on reflection without time constraints (discussed in advance), while tactics operate under strong time constraints (a punctual adaptation to play).

Strategy: Pre-planned elements of a game such as keeping possession of the ball in soccer used in order for a team to organize itself (Grehaigne, Godbout, & Bouthier 2001).

Subconscious processes: An absence of cognitive control of movement processes.

Tactic: Punctual adaptations to the opposition (Grehaigne, Godbout, & Bouthier 2001). Basically in a game situation deciding what to do to get an advantage against an opponent.

Tactical awareness: Involvement in through effective off-the-ball movement and skill selection/execution, and understanding of, the rules of the game leading to the early recognition of opponents' weaknesses (Thorpe, Bunker & Almond, 1986).

Tactical knowledge: A collection or amount of possible initiatives that players can use to play a game effectively. Tactical knowledge is typically tested based on the verbal solutions a player suggests to solve a tactical problem when given a hypothetical situation.

Tactical performance: The physical movements a player executes to solve a tactical problem in a game context.

Tactical problems: Those problems that must be overcome in order to score, prevent scoring, and restart play (Mitchell, Oslin, & Griffin, 2006, p. 529).

Tactical solutions: Ideas manifested by players in order to overcome the tactical problems set out by the game (i.e. give and go or 1 v 1 moves in soccer).

Tag player: A player who is trying to tag a runner with the ball in his hand.

Task constraints: Constraints that are usually more specific to particular performance contexts and include task goals, rules associated with a specific activity, activity-related

implements or tools, surfaces, performance areas, and boundary markings.

Technique: Basic physical movement. Also defined as the ability to "control and direct the ball (or object)" (Lauder, 2001, p.33).

Territorial Games: Games where one team goes into the opponents' territory to score.

Through and in the game: A phrase used by Lauder (2001) to describe players learning within a game.

Traditional or Technical approach: Traditional or Technical approach refers to the conventional practice sequence which starts with the introduction of technical skill(s), followed by isolated repeated drills and finishes with a game.

V-Cut: Taking two-to-three steps in one direction then pivoting and cutting sharply into open space in the opposite direction.

Variability in practice: Provision of practices where variations in movement behaviors are encouraged.

Videogames: Videogames refer to games that involve interaction with a user interface to generate visual feedback on a video device. There are multiple forms of game interface including role-play games (RPG), simulation games (race car driving, flying), sports games (football, soccer), or shorter puzzle games (Tetris, Bejewelled). Videogames have been identified as sites of powerful learning.

Wiki: Created by Ward Cunningham in 1994 and defined as a collection of Web pages that anyone can edit.

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Robin Kirkwood Auld, Ph.D.



Robin Kirkwood Auld is an Associate Professor in the Health and Physical Education Department at Rhode Island College. She teaches undergraduate and graduate courses for the Physical Education Teacher Preparation program. Her specialty areas include Team Sports, Teaching Games for Understanding, the Tactical Games Model, Motor Control and Motor Development. Dr. Auld also taught PK-12 physical education and coached varsity basketball, field hockey and lacrosse (1982-1992) and was assistant coach at Providence College (1991-1998). Education: B.S. in Physical Education from Springfield College (1982); M.S. in Physical Education from the University of Rhode Island (1992); Ph.D. in Education from the University of Rhode Island/Rhode Island College (2006).

began her doctoral studies at the University of Arkansas specializing in PE pedagogy and teaches several physical education activity courses. Her research focuses on effective and innovative teaching practices within Physical Education Teacher Education. She is particularly interested in the impact of web 2.0 tools such as wikis and blogs on learning and teaching of physical education.

Joy Butler



Joy Butler (Associate Professor) is Undergraduate Coordinator and Physical Education Teacher Education (PETE) Coordinator in the Department of Curriculum and Pedagogy at the University of British Columbia. She is also active in the international scholarship, organization, and

advocacy for Teaching Games for Understanding (TGfU). She was director of the 2001 and 2008 International Teaching Games for Understanding (TGfU) Conferences. She is the co-editor of two books on Teaching Games for Understanding and has authored many articles in the areas of physical education learning and teaching, curriculum innovations, and teacher education. In July 2009, she will convene the first M.Ed. cohort of physical educators at UBC.

Helena Baert



Helena Baert is originally from Belgium where she earned a B.Ed specializing in Physical Education. Her educational journey brought her to Winnipeg, Canada where she received a BPE and an MSc. Her contribution to this book is a result of her Masters' thesis completed at the University of Manitoba in 2008. Helena recently

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Ivo Dokman (1976) graduated from the School of Human Movement & Sports, at Windesheim University of Applied Sciences, Zwolle, the Netherlands. He worked for seven years as a Physical Education teacher in secondary education. He also worked for four years as a soccer trainer with youth from 12-14 years old. He is currently teaching methodology of games and coaching in practice for teacher education in physical education. He recently started a small business for innovations in PE materials to make equipment more suitable for children. Ivo is currently writing a book about modifying sport games for secondary education.

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Linda Griffin, Ph.D., received her doctorate in Physical Education Teacher Education from Ohio State University. As a physical educator and coach since 1976, Dr. Griffin has conducted extensive research, published nearly 50 articles and book chapters, and given numerous presentations on the tactical approach. She served on the planning committee for the first Teaching Games for Understanding Conference in New Hampshire in 2001 and was a keynote speaker at the Australia conference in 2003. A former volleyball player and coach, she is a professor and Associate Dean of the School of Education at the University of Massachusetts Amherst.

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Jeroen Koekoek graduated from the School of Human Movement & Sports (Calo), at Windesheim University of Applied Sciences, in the Netherlands. After eight years working as a primary Physical Education teacher, he went on to study the psychology of movement science at the Faculty of Human Movement Science, VU University Amsterdam. He is currently teaching in PE teacher education at the Calo. Jeroen is a PhD candidate in the Faculty of Social and Behavioural Sciences at Utrecht University. His research focuses on children's perceptions and the social construction of learning tasks in physical education. Jeroen is currently writing a book about modified sport games for secondary education.

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James Lloyd Mandigo



James Mandigo is an Associate Professor at Brock University in the Department of Physical Education and Kinesiology. He is also the Co-Director for the Centre for Healthy Development at Brock University. His current research and development activities have focused on how TGfU can be a vehicle to foster the development of physical literacy, positive youth development and peace education. James has worked extensively with local teachers and school boards within Canada and throughout the Caribbean and El Salvador. The Social Science and Humanities Research Council of Canada and Scotiabank International have funded his research and development activities in this area.

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Simply Good Pedagogy: Understanding a Complex Challenge

Introduction

The fourth Teaching Games for Understanding (TGfU) international conference held at University of British Columbia in Vancouver, Canada in May 2008, made a significant statement that the TGfU “movement” is making headway around the world in both teaching and coaching environments. The 355 participants representing 26 countries (including Australia, Belgium, Botswana, Brazil, China, Czech Republic, Finland, Germany, Korea, Malaysia, Pakistan, Portugal, Singapore, and Taiwan) gathered for over 90 presentations during the three and a half day conference.

This edited book contains chapters that were selected from submitted papers following their presentation at the conference. Two other chapters (see chapters one and two), previously published elsewhere, were included to aid the reader in understanding (1) the TGfU approach and how it has been interpreted in Canada and around the world and (2) how constructivist approaches to teaching and coaching have enabled a re-examination of games and the ways they are taught and learned. The eighteen chapters represent a cross-section of ideas inspired by the TGfU approach. This book will become part of a five-book collection resulting from International TGfU conferences (Butler *et al.*, 2003; Griffin & Butler, 2005; Light, Swabey & Brooker, 2004; Liu & Cruz, 2006; Butler and Griffin, in press).

The theme of the conference was *Understanding Games: Enhancing Learning in Teaching and Coaching*. Delegates were asked to consider questions such as: “What if we could create games that engage every learner

to experience the joy of a well played game?” With the emphasis on teaching and coaching, the committee’s goal was to increase the participation of practitioners, given that the previous three conferences had attracted a larger proportion of teacher educators and researchers. This goal was achieved with the attendance of over 135 teachers, 35 coaches, and 35 graduate students compared with 112 researchers and teacher educators. This book represents a condensed representation of the richness of the conference.

The mixture of theory, practical examples, teacher education research and coaching research in this book represents how a seemingly simple approach to solving a curriculum and pedagogy problem in Physical Education has had broad and transformative implications. The title of this book, *TGfU: Simply good pedagogy*, is an attempt to capture the shared disposition of many of the researchers, teacher educators, teachers, and coaches, towards learner-centred and contextualized forms of teaching. These commitments firmly place the learners and the context at the centre of an educational experience through games-based teaching.

Rod Thorpe, David Bunker and Len Almond are credited with creating a climate for curricular change within physical education, which led to the development of TGfU in the late 1970’s. According to Almond (2001), the basis of the TGfU method is to promote learning. “Any subject can be taught to any child in any form if it is put into the simplest terms,” he said. “Teaching Games for Understanding attempts to create a critical framework where games present problems that need solving and players can make intelligent decisions to solve them. In order for children to become intelligent performers of games their teachers need to rethink how

they teach, and to modify game play so that students can appreciate what a game is all about.”

More than two decades after Thorpe, Bunker, & Almond's (1986) initial dissemination of the model, the 2008 conference provided an arena for a restatement of the importance of games as a learning process. The 2008 conference provided a landmark occasion in transforming the International TGfU Task Force into the first Special Interest Group (SIG) of Association Internationale des Ecoles Superieures d'Education Physique (AIESEP). The formation of this group and its alliance to AIESEP will help to sustain interest and ensure the maintenance of high level research in the teaching and learning of TGfU.

Overview of the Book

We have organized the book into four sections. Section 1 offers a broader introduction to the TGfU approach offering an overview of the approach, insights on learning and a historical perspective on the roots of the TGfU approach. In Section 1, three perspectives will inform the reader on (1) a Canadian interpretation of the TGfU approach, (2) how the epistemology of constructivism informs our understanding of complexity learning theories that frame the TGfU approach, and (3) how movement education prepared the ground for the TGfU approach to take root.

Section 2 focuses on how TGfU has generated new ideas in the physical education curriculum. This section draws upon the speculations made by Penney (2006) as to what will be significant in future curriculum research. She suggests that “physical education curriculum study no longer sees the problems of curriculum as ‘technical problems’ or problems of ‘how to’ but rather as ‘why’ problems (p. 563)”. This section explores the question of “Why?” Why should this content be taught? Why is it taught in this way? Why do students learn in this context? It has been noted that the main structures of curriculum – knowledge, teaching, learning, and assessment – have always been strongly debated and yet the curriculum, particularly the games curriculum, is highly resistant to change.

Section 3 focuses on coaching approaches for developing tactical understanding and skill performance in novice and expert players. This section focuses on how shifts towards more learner-centred approaches in coaching education have challenged coaches to embrace the complexity of learning to play a game. In particular, the

chapters consider how coaches need to fully understanding the pedagogical demands of coaching in response to game situations rather than simply focusing on technique in more closed learning environments.

Section 4 focuses on innovations informed by the TGfU approach and how these are implemented by both in-service and pre-service teacher settings. Innovations are synonymous with change because they require teachers and coaches who wish to adopt them to alter their current practices, their beliefs about learning, teaching, and their understanding of what and how they teach. The chapters in this section ask the reader to think outside the box as they examine notions of learning, roles of teaching, ways of learning enabled by technology, personal beliefs and practice and ultimately how to understand change in your own practice.

In sections two to four, chapters have been selected that cover multiple perspectives:

1. theoretical understanding (chapters 4, 5, 10 & 15);
2. practical examples and related games categories, that is,
 - a. territory (chapters 4, 5, 8, 10, 11, 12 & 13),
 - b. net/wall (chapters 7 & 15), and
 - c. batting/fielding (chapter 9); and
3. research (chapters 7, 8, 11, 12, 14, 16, 17 & 18).

The book can be read by sections or can be read from a certain perspective.

In keeping with the themes of collective knowledge construction, the book's glossary was created via an online wiki maintained by all the authors. Through this method of co-construction terms can be understood in relation to the authors' intended meaning, allowing the authors to extend and guide readers' understanding with less familiar terms that they have selected to frame their work.

Finally, each chapter concludes with five questions to help stimulate readers' reflections on the chapter. The questions are framed around the following five headings (1) analysis, (2) application of ideas, (3) synthesis, (4) reflection, and (5) future action.

Brief historical overview of TGfU and Games Centered Approaches

TGfU developed from the work of Thorpe, Bunker and Almond (1986) at Loughborough University in the 1970's and early 80's. As Butler et al., (2003) note “Thorpe and Bunker...proposed TGfU as a shift from the development of techniques or content-based approach with highly structured lessons to a more student-based approach that links tactics and skills in a game context” (p. 2). When David Bunker and Rod Thorpe created the TGfU model they were disillusioned with how students left school or club sport programs “knowing” very little about games. They found that the emphasis teachers and coaches placed on producing “skilful” players resulted in players with inflexible techniques, poor decision-making abilities and often an over-reliance on the coach or teacher. They also observed that novice players often became de-motivated because of the emphasis on skill development. Thorpe and Bunker's first international presentation of the now-popularized version of the TGfU model as a game-centred approach for secondary physical education was at the pre-Olympic conference in Eugene, Oregon in 1984. At that time, it was noted that, “the idea of progressing from tactics to skills, or from ‘Why?’ to ‘How?’ rather than vice versa, is not new, but its organization and application has not previously been made coherent” (Thorpe et al., 1986). They argued that learning from the rich context of the game, modified to the ability of the students, rather than programming students with skills to play a game, was a better way to learn.

In 1969 Mauldon and Redfern first proposed the notion that games could be used to help develop psychomotor skills for primary/elementary school aged children. Drawing on Mauldon and Redfern's (1969) work and Wade's (1967) innovative approaches for using conditioned games to coach soccer, Bunker and Thorpe popularized their game-centred approach (GCA) to teaching games. Influenced by their ideas, Griffin, Mitchell, & Oslin (1997) developed the tactical games model (TGM), collapsing the original model from six to three steps to help teachers and coaches identify tactical problems and skill solutions common to games within the same game categories. As noted by Oslin and Mitchell (2006), “TGM varied from TGfU in that it proposed a progression of games along with tactical- and skill-based practices in a game-practice-game format to accommodate and assist teachers with lesson planning and instruction” (p. 629). In addition, Grehaigne, Richard, & Griffin (2005) drawing from a French tradition of sport pedagogy, suggest another GCA that evolved in parallel to the TGfU approach.

They suggested a tactical learning decision model (TLDM) focused on team sports. Each of these game-centred approaches (GCA) is summarized in Figure 1.

The game teaching approaches in Figure 1 focus on students' learning first from the social context of a game that has been purposefully modified to reflect the abilities of the students. From this embodied experience, students are asked to reflect on game play in order to appreciate how the rules affect their ability to play and how their decisions affect the play of other players. In this way students become aware of the complex interaction of rules, skills and strategies that create the game play they love to experience. From this awareness, skill practice, cross game transfer and game modification is then advocated as students return to game play.

In addition to the school-based game GCAs outlined in Figure 1, other approaches to teaching games based heavily on the context of a game have been suggested. Working from Wade (1967), Launder (2001) advocated a play practice model that he developed at the same time as the TGfU model. This model used mini games that emphasized the development of game play understanding. As Oslin & Mitchell (2006) note, “Launder uses principles of shaping play, focusing play, and enhancing play to create play practice progressions” (p. 629). Launder's approach focuses on the joy of play and his key premise is that practice and games only work if the learner is engaged in a ‘play’ relationship to the task. A more recent development of a GCA is known as Game Sense. As described by Oslin & Mitchell (2006, p. 632) this approach grew out of Playsport [which was] designed by Thorpe and a research assistant to address the needs of coaches, parents, and teachers who did not know games well enough to implement TGfU...Playsport...a set progression of mini-games is presented, and as children meet the challenges of one game, the coach then presents the next game. Game sense promotes questioning and player-centred coaching that challenges the coach to move away from the centre of the learning process.

All these game centered approaches to teaching and coaching games advocate learners playing the game (modified or adapted for the players' abilities) as the central organizational feature of a lesson. Modified games create constraints on the learners' ability to play that encourages certain ways of playing and that emphasizes different features of games in order to develop tactical awareness and skill application. Increasingly this idea of player/game interaction leads to a situated learning perspective where the player's goal of achieving a certain

Figure 1:
Comparison of critical features of game-centered approaches popularized by the TGfU model

Mauldon and Redfern Game Education Elementary — 1969	Bunker and Thorpe Teaching Games for Understanding (TGfU) Secondary — 1982	Mitchell, Oslin and Griffin Tactical Games Model (TGM) — 1997	Grehaigne, Richard, & Griffin. Team sports — Tactical Learning Decision Making (TLDM) 2005
1. Design lessons based on developmental stages to games that lead to skillfulness	1. <i>Modified Game</i> — Based on games category, game designed to foster an understanding of game form based on the developmental needs of the students.	1. Modified game with conditions placed on the game to ensure students address tactical problem.	1. Letting students explore in play context chosen to present them with problems to perceive.
2. Use of a problem-solving approach through game-like situations to highlight tactical solutions	2. <i>Game appreciation</i> . Teacher guidance, learners develop an appreciation for how the rules shape the game, and how skills and strategies all influence each other.	2. After initial game teacher asks questions to help students focus on the tactical problem and its solution	2. Asking open-ended questions once students perceived problems teacher, with open-ended questions, gets students to debate ideas
3. Teach grouping of skills according to generalized constructs (e.g., sending away, gaining possession, and traveling with an object)	3. <i>Tactical awareness</i> . Teacher questioning, learners develop an understanding of important offensive and defensive tactics that assist in gaining an advantage over their opponents.	3. Set skill practice that will help students solve the tactical problem when they return to the game.	3. Taking part in debate teacher asking specific questions. Questions focus students on constraints on game play and solutions
4. Plan based on games categories (net, batting and running) as a way of addressing similarities and analyzing game play	4. <i>Decision-making</i> . With teacher prompts, learners come to understand how to make appropriate decisions within the game context. Recognizing cues in game situations learners decide “What to do?” in a situation and “How to do it?” as an appropriate response.	4. Teacher establishes performance goal for students for skill practice with teaching cues and extensions to make tasks easier or harder to match varying abilities of students.	4. Formulation of action plan . Once students have come up with solutions that satisfy problem the teacher has students practice these solutions to selected performance criteria.
5. Games invention, as a means of giving children choice and an appreciation for the value of rules in shaping the game play for both skills and strategies.	5. <i>Skill execution</i> . Learners begin to realize the importance of proper skill execution and hence will have a context from which to develop and/or refine their current skill level as well as understanding how it can be implemented in a game.	5. Teacher sets modified game to help students use learned skills to address the tactical problem. Performance goal for students in the game is set.	5. Return to play context of game . Observation and feedback from teacher and refining of game play by players based on action plan.
	6. <i>Game performance</i> . Applying the previous steps through performance in modified game against criteria for judging game performance. Game becomes more representative of a formal game.	6. Ensure appropriate closure or ending discussion of the lesson with students.	6. Back to team game . All this process leads to generalization of principles of play to other team games

task is shaped by the constraints of the situation (Kirk & MacPhail, 2002). Constraints are dynamic and based on the internal constraints of the player’s previous experience related to the game, the player’s physical ability and the external constraints of the environment created by the game structure (Davids *et al.*, 2008). Therefore, GCAs advocate that to teach a particular game, the teacher or coach must tailor a series of games to engage learners in game play. Then through guided game play they must assess what learners’

know and can do before teaching them skills to play a particular game.

GCAs require teachers to develop students’ capacities to seek understanding of others’ abilities and knowledge as they learn to play a game. Essentially, GCAs as represented by TGfU are “simply good pedagogy” because it takes the teacher out of the role at the centre of the lesson, takes students learning seriously, and uses student experiences as a basis for learning. The TGfU approach promotes a

constructivist learning process in physical education (Butler, 1997; Light, 2008) but it also promotes learning systems theories (Rovengo and Kirk, 1995) where learning is distributed across a network of components, including the player’s whole body as they engage with other players, ball, space, rules, and conditions. In short, the primary assumption of the approach is that players learn best within a context that their embodied actions can adapt to and evolve from, a kind of dance of persons-in-context.

Experimental design research has not proved or disproved the underlying premises of TGfU, however research consistently shows that students enjoy learning more in a TGfU approach and skill learning is not negatively affected (Rink *et al.*, 1996, Griffin *et al.*, 2005). Critiques of the approach from information-processing motor learning perspectives argue that automaticity of skill execution is needed before playing games with tactical challenges (McMorris, 1998). The premise of this argument is that players cannot handle the complex information in a game unless they have a certain level of automaticity with the necessary skill. However, recent research in the motor learning literature from ecological perspectives argues that you cannot separate individual/task/environment when learning a skill (Chow *et al.*, 2007, Davids *et al.*, 2008). In fact, from this perspective the learner has to actively engage in the complex constraints generated by their own ability, the task and the environment, in order to understand how to adapt a skill to the context of a game (Rovengo and Kirk, 1995). As Hopper (2002) notes, the focus should not be whether a skill should be taught before tactical awareness, but what basic skill the learner can use in order to feel successful in playing the game, then developing more complex skills to engage in more complex games.

Implementation of GCA’s

Though many advances in coaching and sport pedagogy have developed over the decades since Bunker and Thorpe’s observations about the weakness of a skill progression of a sequence of parts leading to a game, we observe today that games lessons in schools and too often game practices in sport clubs, are generally characterized by skill practice with limited transfer to game play, teacher/coach centred drills, and players who follow instructions but lack the ability to adapt to game play and play with creative flair. Simultaneously, the popularity of ideas framed by the GCAs is marked by the increasing array of textbooks on such approaches (Lauder, 2001, Mitchell *et al.*, 2003, Grehaigne

et al., 2005, Griffin and Butler, 2005, Mitchell *et al.*, 2006). While there may be an actual debate around existing ideas and practices, over-simplifying the debate as one between technique and games based approaches tends to over-simplify what actually occurs in either type of setting. We are now at a time when rather than trying to discover the magical approach that will lead to skillful game play, we are more concerned with how we create the conditions for students that helps them learn how to play the game with skillfulness, tactical awareness and excitement. All the GCAs describe the conditions that a teacher or coach can create for learning to emerge. Such learning can be prompted and encouraged by a teacher, but ultimately it has to be experienced by the learner to be known and then used again.

The intertwining of game-practice and skill-practice is a complex process, it is a challenge that requires the teacher or coach to give-up direct control of the learning process. The teacher or coach has to create spaces that shape learning, but that also allow players to actively struggle, ultimately leading to new insights on how to solve the tactical problems of a game situation with appropriate skill selection and skill execution. The player’s ability to read the situation, select appropriate skill and then execute that skill within a complex context means that the player has to make mistakes, reflect on experience, practice a technique needed for the skill to be executed, and then try again adjusting and adapting. For teachers or coaches adopting a GCA approach requires that they give up some control and predictability. Giving up control of scripted lessons with predictable outcomes takes a belief in learning that moves away from mechanistic and simplistic notions of telling, showing or programming the learner. The shift requires acceptance that learning is non-linear, subject to individualized constraints, contextualized both physically and socially, and susceptible, but not dependant on teacher or coach guidance. Detailed planning is needed to prepare the teachers or coaches to lead their lessons so that they can adapt to the learning that emerges from the situations they create, so that they are able to respond to the learners’ responses to the game structures they experience.

Conclusion

The authors represented in this book have considered games and game teaching from multiple perspectives. One consistent theme in their work is a hope that through specific ways of coming to learn games, through game play

and engagement, all children, teenagers, adults, high-level athletes and beginners alike experience the “delight” of a well played game (Kretchmar, 2005). While TGfU may seem an intuitive model to a child-centred teacher or player-centred coach, we ask you to consider the details and processes involved in structured learning experience and how learners are coming to know the game as a result of your instructional design and implementation.

We challenge you, as you read this book, to travel with an organic notion of learning as you renew, re-consider and ultimately re-invent again your ideas about teaching and coaching games. In our view, teaching or coaching cannot determine what is learned but teaching or coaching can create the conditions for certain things to be learned. As noted by Davis, et al., (2008), from a constructivist understanding of human learning, “teaching is not about telling, but about organizing experiences that orient learners’ perceptions to particular details and prompt them to associate those details with other details” (p. 168). It is this notion of teaching and coaching that we hope this book will help you explore.

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