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Sport Pedagogy

Recent Approach to Technical-Tactical Alphabetization

Edited by Jaime Serra-Olivares

SPORT PEDAGOGY - RECENT APPROACH TO TECHNICAL-TACTICAL ALPHABETIZATION

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Notice

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Meet the editor

Jaime Serra Olivares is a postdoctoral researcher in sport pedagogy at Universidad de Castilla-La Mancha (Spain) and researcher collaborator at Universidad Católica de Temuco (Chile). He obtained his BSc, MSc, and PhD in 2007, 2009, and 2013, respectively. His doctoral thesis is titled "Tactical knowledge and game performance of 8 to 12 years old footballers." He has worked for professional football teams at international level (Spain, Malaysia, and Chile). Dr. Serra Olivares has published more than 30 scientific papers and conference proceedings in the field of sports teaching, including football training and physical education pedagogy. He is a member of several national and international societies such as LaLiga Football, and serves on the editorial board of many ISI-SCI-indexed journals on sports pedagogy and football training.

Contents

Preface

In this book considerable knowledge is provided and an international perspective of games teaching in sport is offered. Within the chapters various experiences are developed in the models of Teaching Games for Understanding, Sport Education and the Cooperative Learning model, from the perspective of the Non-Linear Pedagogy of sports teaching. In this way, practical thinking is developed how to improve the way we teach sports.

We need works like this that can clarify the key elements of the pedagogy of sports and that contribute to the improvement of teaching practice. This pedagogical approach is especially important, given that most sports teaching texts are aimed at improving sports techniques.

Research in Physical Education shows that when students are asked, they prefer to devote as much time as possible to sport. The most important reason is that sports activities represent the most playful component of the game. For this reason, it is essential that teachers are able to develop quality games teaching programs. I am referring to a teaching that provides opportunities to be physically active, as well as lead students to socialize and learn together, that is, a complete teaching that allows a meaningful learning.

As with other learning processes, such as languages or mathematics, at the beginning of sports the child is in a process of alphabetization. For this reason, it is necessary to connect technical/tactical learning, facilitating the learning context of the learner. It is necessary to deepen the technical/tactical alphabetization from a Non-Linear Pedagogy approach. In this sense, the originality of the experiences that are exposed in this work entails the change in the pedagogy of sports. This book suggests rethinking the way in which we teach sports.

In this way, the book connects some of the most innovative models of sports teaching, with a well-founded theoretical perspective of the principles of sports pedagogy. This approach provides teachers with an innovative perspective of sports teaching. It is a perspective in which the student is the protagonist and is responsible for their learning. This provides important opportunities for autonomous and efficient learning.

In short, the book is a great contribution to the literature on the teaching of sports and deserves to be read by researchers as well as by teachers and students related to the teaching of sports games. This work will allow them to improve their practice from an understanding of the phenomenon. In sum, the authors provide the reader with a clear vision and orientation that will inspire and guide them to a greater understanding of evidence-based practice.

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Chapter 1

Introductory Chapter: The Need of a Change in the Pedagogical Planning and Programming at School-Age Sport Teaching

Jaime Serra-Olivares

Additional information is available at the end of the chapter

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1. Introduction

In the last decade, the scientific literature related to the teaching of sports has endowed theoretical models based on the game, practice, and its understanding. Currently, there is a relevant theoretical framework for the design of teaching programs based on the principles of dynamic systems, ecological psychology, and the constraints of the motor learning. However, there is no a clear protocol regarding the use of the principles that govern the perspective. Likewise, research is inconclusive regarding how the bases of these previous theories should be used to provide learners with efficient ecological conditions regarding sports learning. For this reason, it is necessary to continue deepening the pedagogical strategies of games teaching in stages of sport beginning.

The perspective used from the ecological psychology and the dynamical systems theories allows the learner to be understood as a complex system composed of several subsystems. In the physical education class, for example, the child who participates in a sports game and its environment forms a group that interacts mechanically and informationally. Thus, the game behaviors are developed due to the interaction between individual constraints and intentional adaptations made to the conditioning factors of the environment, during the performance of a specific task.

The foundations of this perspective help to understand how learning occurs through practice and understanding, as a process of *Technical-Tactical Alphabetization*. In this regard, in the present work, the theoretical bases of the models Teaching Games for Understanding, Sport Education, and Cooperative Learning are related with the nonlinear pedagogy approach. The experiences presented here have been adapted for the teaching of tactical foundations through modified games (task constraints alteration) adapted to the needs of the participants

(individual constraints), without demanding a technical mastery, making possible the practice of any subject. The modification of the sports game through pedagogical principles is a key aspect, since it emphasizes the interaction between the constraints of the subject and the constraint factors of the environment, to achieve an intended action. Thus, the present work represents a resume of four experiences in four different countries and contexts such as Malaysia or Finland.

The Teaching Games for Understanding model differs from other traditional approaches by giving more importance to the tactical learning of the game, increasing the motivational process of the learners.

Sport Education is suggested to contribute to the empowerment of athletes and helping them to develop the autonomy for decision-making, self-control, and motivation.

Cooperative Learning, for instance, is characterized for being a pedagogical model that can be used to teach several contents in different and variated contexts, contributing in addition to the teacher's professional development. Students work together in order to complete the activities, achieving their learning goals through an innovative program.

These models are in line with the foundations of the nonlinear pedagogy perspective, which is based on the ecological psychology and dynamical systems theories.

In summary, the essence and advantages of these experiences are presented. The main findings observed serves as a guide for pedagogical planning and programming of school-age sport teaching.

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Chapter 2

Tactical Preparation in Sport Games and Motivational Teaching of Sport Games Tactics in Physical Education Lessons and Training Units

Pavol Peráček and Janka Peráčková

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Abstract

In this chapter, we deal with issues that are relevant to educational processes where the cultivation of game performance is a primary or parallel goal. Developmental tendencies in sport games focus not only on the content of the training process, its rationalization and optimization, but also on the content of teaching sport games, which recently have significantly influenced the preparation and preparedness of players and pupils in school physical education and in training process too. Didactic process in sport games is understood as a system of interactions (mutual relationships and mutual influence) among the main subsystems: pupils or players, teacher or coach, content and conditions with the intention to cultivate the game performance of individuals or team. Tactics, generally refers to a player's system of acting, system of various alternatives of decision-making responses, which allows in a time-bounded concept of a goal realize player's conduct and team's conduct within the short-term relation. Chapter provides the comparison of traditional approach and approach of teaching games for understanding. Teaching tactics in physical education and training process is very important part of educational process and the motivation for learning is an integral part of whole activity.

Keywords: tactics, sport games, motivation, tactical knowledge, tactical thinking

1. Introduction

According to current research, sport games in our country and in the world are prevailing physical activities from childhood to adulthood in various educational settings and at different levels of sport performance. An important intrinsic factor in popularity of sporting game

activity is its basis – game. The next symptoms for liking the game are situational unexpectedness, conflict, alternativeness of solving playing situations, spontaneity, creativity and social relations (communication and cooperation among players), these all act on the sphere of experiencing and satisfying the diverse needs of a person. The great popularity and social status of the sport games on the one hand and the existence of eternally vivid question as how to create appropriate conditions for effective improvement of game performance in training process on the other hand are the incentives to develop sport games didactics as a clinical pedagogical discipline. In accordance with current understanding of didactics, we can characterize it as interdisciplinary scientific discipline that integrates the knowledge of biological, educational, psychological and others disciplines in which the subject of teaching and learning of sport games take part. Specific areas of research include the teaching of content, activities of the teachers or coaches, the trainees and the conditions in the teaching process and their effects.

As far as the application of sport games in the context of physical education or directed moving recreation is understand as a systematic, organized and goal-oriented process, it has the symptoms of sport training. In accordance with the current theory of sports performance [1–2] and sport performance in sport games [3–4] is game performance understand as an expression of the integration of two functional areas:

1. Physiological and motor functions that ensure the production and use of energy in motion and are equally associated with the manifestations of psychological characteristics,
2. Psychomotor functions (techno-tactical factors) that feature the basis for sport games.

Of course, they have also influenced the training process and teaching technology and methodology. Research, development and rapid introduction of new materials have greatly influenced game performance in various areas of sport games. The speed of the ball (new materials) has increased; the game situations also in terms of this aspect are considerably more complicated and more difficult to solve, that not only puts greater demands on the speed and accuracy of the perception, but also on the decision-making process. Player perception runs under time pressure and optimal performance to solve the game situation needs to be achieved in the shortest possible time. Matches require players to perform continuously, which means during the entire match or during training process then throughout the duration of the training unit and the small-sided games. This requires players to maintain high quality of perception, concentration and decision-making for long time, even when the player is physically and psychologically overloaded.

2. Epidemiology of sport games in the physical activities of current population: Determination of the term

Sport games occupy a significant place in the physical activities of different groups of the population. The popularity of sport games in the children and youth population confirms current epidemiological studies not only in Slovakia [5], but also in other parts of the world and thus in other socio-cultural environment such as USA [6] and Asia [7].

The didactics of sport games have also undergone a certain historical development. The basis was based on the systematic of the game activities from the content of sport games that were taught in European countries, and included recommended methodological sequences of teaching (algorithms). The game performance of the team was not used and the specific game activities of the players were not taken in account. In this period of development, the theory preferred mainly focus on technique of the game activities (skills). The textbook of [8] suggests that each teaching cycle begun and ended with the match. Because the match as a form of existence of each sport game, ends with a concrete result. This is an evaluation of the performance of both competitors on the single evaluating scale: win – draw – lose. Forcing the game that a teacher should adapt to the game level of participants so that they can play, even when the game performance is not so high, means, among others, to find excellent source of didactic diagnosis. Another positive point is that based on such an initial diagnosis with the use of appropriately chosen content, the teacher can also make some intervention at the level of the team play. It is also possible to talk about certain game-based approach to teaching sport games. In 1980s of the last century, teaching approaches appeared in sport games that prefer more play and less drill [9–16]. They emphasize game-oriented approach, or in tennis practice a tactical didactic approach to game-based approach, that places emphasis on situational training [17]. This is defined as where teacher or coach identify a frequently encountered situation at the pupil's or player's level and present it as a problem-solving task to accomplish.

3. Didactic process in sport games

In sport games, intuition often appears as the product of all coach or teacher and life experiences that allow immediate insight into nature of the phenomenon, and can even accidently facilitate their knowledge. The opposite of intuition is a rational approach based on verified knowledge. A successful trainer or teacher should associate both approaches in his/her profession. On the one hand, make use of their immediate intuitive view of the game and its contents and rationally know how to justify it and know how to reveal the causes of changes in player state. In particular, management must rely on causal clarification and justification for rational decision-making, which is not possible without proper knowledge. If we understand the sport training or teaching-learning process as a real, casual system of human activities that combine with subsystems of processes of events, relationships and goals, a new look begin to open on relationship framework into which we want to place the problem – cultivation of game performance. The activity of a teacher or coach and the activity of a pupil or player will appear. If the teacher/coach activity is congruent with the pupils/players' efforts, this is a progressive phenomenon, as it allows developing teaching methods, whose holder is teacher or coach, and the learning methods, whose holder is pupil or player and at the same time can be the concordance of teaching and learning efforts – didactic resonance. Such a binary approach upgrades, in the spirit of modern approach and modernization efforts, the learning of the pupils or players to the right place and leads the teacher or coach to assess correctly the pupil/player's activity as a necessary condition for improving game performance. This leads us to the conclusion, that teaching must respect pupil/player learning and asks us to know how a pupil/player actually learns and how we actually teach, what the sources of pupil/

player's motivation are and what keeps his/her needs to learn, because every human activity is associated with change, and it is the cause of change. With the interoperation of the teacher/coach's and pupil/player's activity comes into being the educational process, which becomes a system element of education (teaching and learning). The game performance is formed in it. Simply said – teacher/coach's activity is the cause of change in pupil/player's activities and these are the causes of changes in game performance.

When considering the issue of how to make training process more effective, in terms of increasing the level of game performance, the answer is – we need to increase the effectiveness of all activities aimed at achieving the main goal. It means providing the teacher/coach reasoned knowledge that could improve his/her conduct in education. Therefore, in the didactic process, we distinguish two key areas of realization:

1. Training (teaching-learning process) – as a way of realization of learning outcomes and creation of conditions for the development of the pupils/players from the aspect of game performance.
2. Match – as the basic mode of realization of each sport game.

We perceive the activity of the pupils/players in training process as "learning", and in match as a "game performance". The activity of the teacher/coach in the training process we accept as "teaching" and in the match as "coaching" as an expression of the conducting team in matches of official competitions.

Preparation strategy in sport games – it is a preconceived plan (which is prepared ahead), and that leads, through certain knowledge, to the achievement of the best or the planned results in competition. Ref. [18] defines strategy in sport as a regulated plan system of players' conduct and as an alternation of decision-making of players', which includes other sports variables in long-term and medium-term planning, so that in addition to directing to the game we can realize long-lasting goals. The strategy can also be presented as a summary of the main intention, means and kinds of activities that are used to achieve the long-term goals of the sport. In sport preparation, the entire realization staff for the sport team should be involved in the strategy plan creation, where the key position is given to the coach at determination and determining the strategy plan. Strategy is superior to tactics. In order to better differentiate strategy and tactics, we recommend the strategy connect with the teacher/coach's activities and with his/her advices, which he/she provides to pupils/players. In the case of tactics, we recommend to apply this concept to the pupil/player's decision to select a particular activity on the pitch.

Tactics therefore elaborates the strategic intention of preparing the player or team in real conditions of a match and solve situation in match. Tactics point to the possibilities of solving certain sub-situations within the strategy. It focuses on the practical implementation of such situations in the match. This solution is learned in the training process.

In sport games, several unexpected situations can arise, and then the player must be able to react to such situations, solve the situation or improvise. When improvise he/she can apply cognitive strategies learned in training process, or construct some new in creating something spontaneously as a response of own level of knowledge, experience and level of own motor

performance. This is especially typical for sport games, where the players have to deal with a large number of game situations. Several of these game situations can be predictable before the plan is drawn up and when they are repeatable then we called them typical. In addition, the other group we mark as standard, which are defined by the rules, these can be prepared in the training process.

The biggest group is unique game situations that meet the common character of all sport games – the unexpectedness in the full extent. The player must react such game situations and take quick and correct decision.

This is a conscious movement program (dynamic stereotypes, motor innervation patterns), whose optimal application is determined together on the one hand with the structural influence of motor skills and motor abilities, on the other hand it also depends on situational relationships (team dynamics). Interactive programs are conscious in general, and they serve for reduction of complex situation in order to secure the member of a team the optimal conditions to act with focusing on goal [19].

Tactical preparation is the process of acquiring professional knowledge by players, learning and improving skills that enable the player to choose the optimal solution in each game situation and apply it effectively. Fundamental sign (characteristic) of tactical preparedness are tactical knowledge that is gained in theoretical preparation. In this case, it occurs as overlapping the content of tactical and theoretical preparation. That is why one part of sport preparation is marked as theoretical tactical preparation. From the point of view about the relation of this part of preparation to theoretical preparation, we consider the theoretical preparation as a superior part of this part of preparation. Because theoretical preparation has a wider scope of content than the theoretical tactical preparation (apart of the tactics, the content of it are knowledge about hygiene, diet regime, drinking regime, sleeping regime, and rules). The content of tactical preparation includes activities aimed at developing tactical thinking and tactical acting.

The tactical part of an individual's playing activities is the thought acts and operations that take place in player's mind during the solving game situations. Therefore, the chosen tactic must be based on the player's abilities, because when the player is better prepared in terms of fitness, then there is more potential options in the field of tactics. However, if the preparation of a player/s is only one-sided focused and the player is not prepared adequately in terms of physical fitness, even with the high quality of tactical preparation, there are reduced possibilities of choosing the optimal solutions. In addition, the coach has the reduced possibilities of choosing the optimal means.

4. Traditional approach to teaching sport games

In many schools, there is still traditional approach to teaching sport games [20]. Some experts call it a technical approach, and this title reflects its content. The premise suggests that the pupil/player's participation in a match is only possible if he/she master the technical side of game activities – motor skills, which are the content of the game. In order to master them, pupils/players have to practice the activities – motor skills. This part of the training process/

teaching process usually includes very simple exercises, the content of which is torn apart from the match conditions. Therefore, pupils/players do not understand the importance of the individual movement/game skills necessary for game performance [21–22]. Traditional (technical) approach is based on consideration, that pupils/players may play the game only when they master the technical side of game activities (but there is not strictly defined, what does it means, where is the limit of acceptability – to be prepared and be ready to play) [23]. Preparatory exercises (drill exercises) are characteristic of this traditional approach. Pupils/players often lose the concept of a future game when performing these exercises, because the situational requirements in the exercise are different from that in the game. Sometimes it is very useful to perform skills under strictly given conditions and to bring top players to the conscious control of some important movement details (technique). The protagonists of this approach are convinced of the smooth transfer of in this way adopted game activities (motor skills) into the game [24].

4.1. Pedagogical background to traditional approach in teaching sport games

In the traditional approach to teaching sport games, there is a complete or partial suppression of cognitive, motivational, and emotional processes. Due to the non-variable/unchanging "game" conditions and the unchanging psychic burden of individual game activities, cognitive processes are not very important for the success of game performance [24]. In this approach, the analytical-synthetic teaching algorithm is used (from part to whole) [25]. The teaching methods are mainly explanations, descriptions, instructions and practical exercises. Within the individual types of exercises, the authors propose to proceed from preparatory exercises (drill exercises) in non-variable conditions through game exercises in non-variable and variable conditions, and the game is applied only at the end of lessons [26]. Such a way of sequencing (arranging) the exercises it is called a progressive algorithm – sequentially increasing the complexity of the conditions in individual exercises or in small-sided games. A characteristic feature of a traditional approach is the isolated practice of individual's game activities from the game conditions, decontextualization [21, 27], which appears to be negative in two directions:

1. The preparatory exercises (drill exercises) are very simple, the task given to the pupil/player already has predetermined solution, and the final goal of these preparatory exercises is to learn, and remember drilled activity pattern.
2. Despite the fact that we will intentionally apply the various deforming factors and their impact (teamwork, physical load causing internal discomfort, requirements for precision of activity and change of internal conditions at exercising), the transfer of trained game activities acquired in stable conditions of preparatory exercises is very limited for game performance. In this context, we would like to point out the didactics of sport training in sport games, where we emphasize the importance of the theory of adequate coverage in the transfer of motor and cognitive structures. Game situations in teaching/training should respect the natural game situations of the match [28].

The principle of adequate coverage is consistent with the theory that when the game situations in the training process are identical to game situations in the match, then we can expect bigger transfer. It does not concern to very simple exercises (preparatory exercises – drill exercises) in which is the absence of opponent and the teachers/coaches rely on

technique only. From the point of view of transferring the complexity of the exercises (training load) from the training to the match, the content of the exercises is important. Game situations created, for example, in play practice scenarios, and small-sided games must include the factors that will be most accurately covered (simulate and modulate) the conditions of the match. Practiced game activities have to be performed as intended to be played in the match. Therefore, in conditions of situational unexpectedness we increase (simulate) the requirements of the game for cognitive processes. These processes guarantee (according to decision about the goal of activity) the program of motor realization of the game activity, its control and evaluation. These are mainly processes for regulation of actual course of activities, including its control. It is necessary to identify with the critique of [29], who prefer instead of teaching pupils/players to play and to lead the ball in stable conditions of drill exercises that it is essential to learn these game activities in game conditions of the match. In such a situation pupils/players simultaneously engage and develop cognitive abilities [22, 30–31].

5. Teaching technical and tactical alphabetization

There is no unanimous concordance (congruence, agreement and identity) in the statements (opinions and expressions) about the advantage of Teaching Games for Understanding (TGfU) approach. Ambiguous examinations were found in previous research. A support for teaching in intention of the approach of Teaching Games for Understanding (TGfU) has been proven in several authors' studies and evidence of implicit learning of techniques and decision-making has been shown [32–37]. [38] strived to show focus of reviewed monograph and had no intent to provide the last word on this issue, which related to tactical approach, skill approach or combined tactical and skill approach. Practical methods of learning in physical education lessons and training units are basis in acquiring technique and tactics from every kind of sport games.

In the world literature, there are several approaches based on the preference of the game play in teaching/training process. Some authors define this approach as a tactical approach, or game appreciation approach, or approach based on sport games content understanding, or approach about the return of playing street sport games.

Tactical approach is probably not the most appropriate term, as it seems to be obvious that teaching/training process does not pay attention to the technical aspects of individual's game activities and game activities. For some reasons, some authors have chosen title that is more straightforward – understanding of sport games [26]. Teaching games for understanding is the name of this approach used in the paper of [32] who are considered as founders of this concept. Ref. [39] suggest that in teaching-learning process of sport games it is recommended to involve preparatory games, small-sided games. [39] based their approach on understanding sport games, and highlighting four pedagogical principles:

1. Transfer of cognitive and motion structures in the teaching of sport games.
2. Putting small forms of small-sided games.

3. Highlight the tactical problems in the preparatory/small-sided games
4. Adequacy of complexity (development of exercises and their sequencing).

5.1. Transfer of cognitive and motion structures in the teaching of sport games

Transfer as a positive transmission can only be there where there are identical elements [28]. Ref. [40] reported about transfer research between tennis and badminton strokes. The result showed that there is neither a negative (interference) nor positive transfer. However, [41] has shown a positive transmission (transfer) of tennis skills to table tennis. [42] highlighted the transfer between tennis and squash, and the throwing skills between basketball and rugby. We have some knowledge about this phenomenon, which characterized that all practice in sport games is based on the beliefs that transfer exists [43]. Regardless of the state of theory, we know that many teachers/coaches deal every day with the question of transfer. [39] divided sport games into four groups: 1. Target games, 2. Striking/fielding/run scoring games, 3. Net/wall games and 4 Invasion/territorial games. The whole systematics of sport games have built on, that sport games within in one group may be different, but the solving of the tactical problems and the specific knowledge needed for is highly related [15]. Through this approach, pupils/players have the opportunity to discover and understand the similarities between single sport games, allowing them to transfer the adopted game performance tactic between sport games of the same group [44]. We consider that it is possible, from the existing theories, to select the knowledge closest to the sport games. On that basis, create a set of directives according to which teachers/coaches could decide and under which teachers/coaches could work in organizing learning conditions with sufficient certainty of positive transfer and thereby increase the effectiveness of their acting. Simply said, transfer occurs when the pupil/player recognizes the similarity between the elements of the new game situation and the elements of the previous game situation he/she has dealt with. Transfer depends on the amount; meaning and understanding the player enter into learning with. Transfer is an exam of understanding the content and the view upon this content. When pupils/players understand the similarities between sport games (basic rules, tactical problems and applying game activities in game situations), they can easily learn a new sport game [14–15, 21, 25, 45]. The likelihood of the transfer is increasing [46] when the movement structure used by the pupil/player in given sport game is more relevant to the previous sport game. The conditions of the maximal transfer are as follows:

- Exercise and its content must be very similar to the final game performance in the match.
- Between an initial task in teaching/training and the task in match, it is needed to build an intellectual bridge of understanding and comprehending.
- When there have to be a change in the game performance, there must be more task in learning/training process that can be transferred into the match.

Adequate coverage is in the coincidence with the theory of identical elements [40], according to which two game situations when they are more similar in the training and in the match, the greater transfer we can expect. This issue is therefore very closely related to the appropriate

content selection in training. Authors [47] distinguish the principle of equivalent practice and the principle of analogous practice. The principle of equivalent practice means that the practice of learning practice is identical to the final behavior of the learner. To this point should the learner be directed and this behavior of the learner should be expressed in the goal. Each pupil/player should be aware of the specific or general context between the exercise and the game situations that occur in the match.

5.2. Putting small forms of small-sided games

The second pedagogical principle is the applying of small forms of preparatory games with a smaller number of players or on a smaller playfield, with the changed of the object of the game or the changed rules of the game, while tactical structure is the same as in sport game, that the teacher/coach have to learn. The asset of preparatory/small games with fewer numbers of players is that they are all more involved in the game (more activity, more frequent alternation of the game situations) [27]. Analysis was realized in the training process of young football players in Manchester United and researchers have found that in preparatory/small games with a small number of players, they deal 10 times more game situations than in a traditional game and their game activities are therefore significantly higher. If we do not respect the required level of game skills, how it is understood on the scale of elite sport performance, we will not reach that level, even when we will set any goals.

5.3. Highlight the tactical problems in the preparatory/small-sided games

The third principle states that it is necessary to create such preparatory games, in which the rules with certain tactical problem will be highlighted and it should be solve by the pupils/players, they have to deal with. At the same time, these rules will point to individual game activities (skills) needed to solve a tactical problem. Transposition of learning from the conditions of mechanical learning of game skills to the conditions of game is considered as a key problem of practice. The classical approach uses recommended full acquisition of the game activities/skills in the non-variable/unchanging conditions of the teaching/training process as the first and then create the exercises in such condition, which are closest to the real conditions of sport game. Great emphasis was given to technical side of an individual game activity, which mistakenly in the ideas of these approaches identified this side as a prerequisite for successful application, without bearing in mind the varying or game conditions, where tactics, tactical aspects of game activities were highlighted. The logical consequence of distinguishing the technical and tactical aspect of pupil/player's activity has been the fact that many teachers/trainers have expressed the opinion about full acquiring some individual game activity/skill only when the pupil/player acquires its technical side. Both approaches—technical or tactical—are currently being under criticism. The best practice is in the idea of a balanced application (reasonable proportionality) of all types of exercises with variable and non-variable conditions, or small-sided games [48–49]. The modification of the tactical problems in small-sided games [50] revealed a significant increase in the difficulty of developing skills both with the ball and without it, developed the interaction with contextual dynamic and tactical constraints, and cultivated the player's game intelligence.

5.4. Adequacy of complexity (selection of exercises and their sequencing in technique and tactics according to children development)

The teacher/coach must create such small-sided games in which the cognitive and motor difficulty is adequate to the age and abilities of the pupil/player. Successful teachers motivate pupils to create such activities or task in didactic process that are adequate to the developmental stage of the pupils and the pupils can successfully complete them, what is the incentive for intrinsic motivation [51–52]. Teacher/coach has to create small-sided games based on pupil/player's abilities and knowledge. It should be created such rules of game so that all pupils can participate actively in the game. It means not to adapt children to the game, but the game has to be modulated to the children. It is more effective. In terms of transfer, the learning experience is best suited if it is context-based. This means that pupils should learn game activities in a context in which they will be used next [53]. When considering the complexity of the teaching/training load (the complexity of the movement task), it is necessary to think about the way of presenting the movement task to the pupils/players, so that they can understand them and it is necessary to provide feedback too, when evaluating pupil/player's work. This is directly related to the requirement that the pupils/players correctly understand the meaning and the sense of the presented and sometimes very complicated (very complex) content of learning. It is needed to explain the task in a short and concise commentary, show it (demonstrate it) and during the performance provide the matter focused to instructions and corrections. Although the tasks are complicated, pupils/players should feel joy at learning these activities. Joy is one of the important motivating factors for continuous participation in the physical activities programs of young people. The thought-provoking line between simplicity and the complexity of the assigned tasks is searched for very difficult. Relativity of simplicity, respectively, complexity of load-bearing activities is obvious to practice. All depends on the teacher/coach, the pupils/players, selected content and the conditions at the time. Even the very simple task (at first glance) in some exercise can in fact be very complicated. If the practice is to be effective, it must be a bit difficult. Of course, the initial phase of learning requires some effort and concentration, but it should not discourage the pupil/player. The original approach based on teaching games for understanding [32] began to be researched very intensively much more after several years of its formation by [21, 24, 31, 34, 54–57]. At the same time, many practitioners of this approach based on understanding prefer it. In Slovakia, it is mostly used as the traditional approach in schools. Teaching Games for Understanding (TGfU) is only one of the models as how to teach the sport games and can be used when appropriate (when players possess sufficient simple skills of a game, when they want to learn anything in innovative way, when they want answering and being involved in the process of questioning and answering). The values of game-like situations in teaching process of physical education or training unit are acceptance of the rules, working in teams, cooperation among teammates, and pressure of solving not only tactical situation but also social relationships. In the study of [58], findings indicated that using approach of Teaching Games for Understanding involve each team member, that inexperienced students developed their understanding and involvement in play, and that with this approach the team cooperation and communication had improved. The findings of the study of [59] suggested the importance of TGfU approach to improve primary students' tactical understanding and decision-making in handball game. The similar results are viewed in research [60], who with the use of TGfU, proved improvement in tactical awareness and decision-making. Improvement comes after practice.

An attempt how to improve games teaching is with cooperative activities in learning process [61]. The game is about cooperation, about social interaction, about symmetric communication among teammates. The communication in small group with cooperative motion activities encourages talking among teammates and pro-social behavior. After 6 months experiment duration [61] was evident that applying cooperative activities noted the high statistical significance in improvement of interpersonal relationships. It was expressed by the shifting the proxemics values to higher one on the scale, what means improvement of interpersonal proxemics. The group dynamic [45] in cooperative learning allows pupils to take responsibilities, to help each other, to be socially interacting and to promote social, physical and cognitive learning outcomes.

6. Teaching tactics of football

How to learn the tactical concept of the game? This is the question of many coaches and teachers. When are children able to learn tactics? When are they developmentally ready to understand not only the words but also meaning in the whole width of a sense?

Tactics are the specific actions in which individuals, component groups, or the whole team can perform. Tactics refers to targeted actions that allow the realization of the strategy [62].

Tactics are punctual adaptation to new configurations of play and to the circulation of the ball; they are therefore an adaptation to opposition [31].

When the teaching approach is appropriate, the players can learn easier. It should be enjoyable and fun practices, which provide efficient learning of technical and tactical sports skills [54].

The first step is to possess some football skills for beginning the play.

A picture is more than thousand words. Seeing is better than hearing. Doing is better than seeing. That is why the coach has to introduce and explain the topic and use no long but short and concise language. Than make some demonstration (show it) repeat the main phases of the action and try to do it.

Tactical ideas are taught for that reason because they can be used in the game and gain some advantage in the process of the game. Ref. [63] measured individual player and unit tactical behaviors within a professional soccer team and compared them with overall team strategy. Chi-squared analysis highlighted distinct individual and unit tactical behaviors indicative of role-specific responsibilities. They recommended use the methodology in investigations of tactical behavior.

A football coach have to keep in mind (bear in mind) the opponent's strengths and weaknesses and be supposed to offer tactical solution to own football team with the regard of their mental and physical attributes, capabilities and qualities. Coaches are responsible for information given to players, which are gathered from the senses, are stored in memory, processed (in dependence of the level of education, depth of the knowledge and experiences) by the brain and if needed can be used as a response or act. Ref. [64] stated that experience alone does not translate into expertise. "Sport expertise develops over considerable time and practice

using the knowledge and skills" ([64], p. 255). The development of expertise in sport is the result of successful interaction of biological, psychological and sociological constraints [65]. It takes time and training to become skilled football player.

Changes in player's performance in a game process require the changes of thinking and changes in decision-making. Ref. [66] viewed decision-making in sports from cognitive perspective and the decision-making is needed to be learned within an information-processing model. They identified experts as the athletes who compete at a higher level, while those who compete at a lower lever are considered as novice. In our perception of novice, it can be also taken in consideration the sporting career (how long are they involved in the sport training). Ref. [66] explain that experts have a higher level of decision-making when compared to novices in a specific sport setting. Experts perform more capably than do novice in various determinants of the decision-making process. Experts are able to predict event occurrence more accurately. Experts are more confident in decision-making process and need less information (cognitive, acoustic or visual), and they exhibit greater speed in signal detection tasks. Experts for decision-making focus on what is important by solving problem, and forget what is unnecessary. Experts become only after years of intense work and training. Decision-making responses are the results of good organization the information in long-term memory and their transferring into working memory so they can be used for problem-solving tasks. According to Ref. [67], we point to their opinions, that experts store and access information more effectively, can better detect and recognize structured patterns of play and make decisions that are more rapid and more appropriate.

Our opinion is that tactics is about quick and right decision-making and then can be effective, because in the play the time is the biggest enemy. As the study of [68] confirmed too, when using Game Performance evaluation Tool (GPET), another aspect that influences significantly on evaluation quality is the time. The time available for the players to make decisions and the time they use in making the decisions.

Some recommendation for teaching tactics:

- How to take up a position in open space is the first step of tactics.
- Requirement for teaching tactics is to teach one tactical idea at the time, no more.
- The teacher or coach at motivational teaching set several examples of good practices [69].
- Activities should fit the developmental levels of the children. If an activity does not fit the needs of the child, the child will show either frustration if it is too difficult or boredom if it is too easy [70].
- Effective instruction promotes the transfer of learning from practice tasks to the real game [54].
- Instruction should be short, concise and to the point. Not too much and not too little.
- To recognize the learning style of pupil and find the teaching strategies that respond to it.

The teacher or coach use a wide range of games to teach not only skills but also tactical principles. Refs. [71–72] emphasized inseparableness of techniques and tactics in the player's actions during the game and reviewed relationships between procedural knowledge and decision-making. Ref. [45] presented three student-centered models to learning: sport education, tactical games and cooperative learning. These three student-centered models to learning emphasize active learning. These models use cognitive understanding of physical education activities, exercising them within a social interaction and decision-making process. Teacher is the facilitator of the learning within a student-centered environment.

For maintaining the tactical complexity, it is needed to focus on questioning as a teaching method to develop pupils or players understanding. When preparing the lessons, teacher or coach ought to prepare several questions. During the lesson, observe the learning process to think out several new questions arising from the activity done in lesson [71]. Questions relate to tactics bring in education effective use of active learning, learning though playing the game [73]. For analysis of an individual and team, tactics is questioning effective method of keeping players encouraged. The term game sense is adopted by [74] and to refer the approach of tactical learning. They explain game sense as the understanding sense of the game or understanding of how to apply the skills in games.

Secure the emotional security of teaching, that all the players feel free to answer the questions without fear of mockery and insults. In such an environment come unpredictable ideas [75–76]. For perceptual training in sport may be possible using interactive video technology [66].

Perceptual training would need to invoke the same cognitive processing scheme as would occur in an actual game situation [66]. When making the decision, coaches take into account the space of the field, man thinking and performance of the skills, because pupil or player can apply the tactics only when he or she can use the proper skills. Coaches commonly used the pressing in the team with possession of the ball and the reduction the time to decision-making too when applying tactical adjustments in small-sided games [77]. Authors [77] found the influence of the size of the pitch in the tactical behavior of teams measured by data position metrics. If coaches want to decrease the tactical complexity in the attacking-the-goal-tactical problem, they should bear in mind that the modification of key elements does not necessarily decrease the difficulty of the game [78]. Variability and flexibility of the behaviors during invasion games seems to be [79] more affected by the specific tactical constraints of the game and the internal degeneracy process of the players – kind of relationships among players and the context they have to face.

The problem regarding game tactics or tactical principles are motor conditions too, which the players have to face with [80]. Much more emphasis is given on individual and group-tactical requirements in convergent and divergent tactical thinking [81].

Tactics is not inherent but it can be learned, so with education and gaining of new knowledge and new experience, it can be real development of tactical awareness of pupils or players. In the game, the tactics is basic factor for success. Becoming a player from learner in sport games takes hours in the teaching-learning process.

Studying tactics has become a subject of great interest [31, 63, 80]. To find the balance of teaching physical skills (motor skills) and mental skills (cognitive skills) – this is the question of nowadays didactics. Sport game is as well athletic performance as a cognitive activity.

Motivational teaching without directive teaching style allows more independence and active approach of pupils to solve the given tasks. Pupil or player autonomy encourages internal will. Success of solution is the result of creative thinking; it is the result of finding the right possibility from the amount of variety options. Pupils or players are guided to find creative solution; they discover the optimal option themselves. For this purpose, teacher should use different teaching methods in case for learners not becoming bored of only one-sided approach by using teaching methods.

Creative thinking provides a competitive advantage and possible success. Seeking a successful solution is dependent of individual characteristics (e.g. way of thinking, level of knowledge and experience, understanding of the subject matter, talent, personality and abilities). Pupils or players build on previous knowledge and experience to find solution of current arisen problem. They become the subject of thinking and finding creative and effective solutions, and then they will find the best one with the control and verifying of teacher or coach, which they can apply. The support of creative teacher brings creative thinking in pupils. Only creative teacher creates creative pupils. To play any sport game requires some cognitive skills for creative thinking to solve occurred situation.

Teacher in classrooms with positive association between creativity and academic achievement [82] tended to demonstrate more caring behaviors toward students and to provide support that is more emotional to students. The finding of [83] supported hypothesis that also the body posture influences creative task performances. The embodiment of the open posture was associated with the highest scores across all of the creative indexes when tested in the creative task. The closed posture was detrimental to creativity. When face to the problem, do it in an open posture to gain more creativity (because open posture secure open mind).

Research [84] resulted confirmation that there was a discrepancy between the in school and outside of school creative activities and achievements. They reported significantly more creativity outside rather than in school.

7. Assessment in sport games in school physical and sport education and in sport match

The importance of the game performance is a contribution to didactics of teaching sport games. When searching for other possibilities to achieve another pupil/player's manifestation in terms of greater autonomy and activity, diminished dependence on the teacher/coach, we find that some opinions are offered in manipulating with the "assessment" variable. One teacher/coach cannot observe and evaluate the immediate performance of all the members of the class/team even when performing very simple movements and motions. Therefore, it is possible to recommend that the component of the evaluation and the assessment, which

represent the correction of the mistakes, and aid for the pupil/players to perform a series of tasks, should be transferred to the pupil/player. It is very difficult to measure tactical acting and tactical knowledge. The evolution of tactical assessment has grown considerably, given its importance in game performance [80]. In their opinion, the contextual problems in a specific game situation are the content of the term of tactical principle. To be the evaluator-observer for assessing tactics in game it requires a training for this work.

The profession of a teacher/coach is very serious, difficult and demanding profession. His/her behavior, action, his decisions are monitored by his/her pupils/players, the opponent's players, his/her colleagues, parents, professional public and the functionaries. The teacher/coach is expected to be fair, objective and will have the same "meter" on all pupils/players. However, is justice possible in his/her professional life at all? What must the teacher/coach know to be objective? What are the consequences of his/her decision-making for the teaching/training process, for the matches, for the professional player's career, for the club?

When bearing in mind the training process, so assessing the player's performance, assessing game performance significantly influences the quality of this training process, which then intervenes in a large number of areas. It allows the coach not only to assess the effectiveness of the training process, but also to plan the next training process, its focus (content, training methods, methodical forms and applying the training means and tools). The player also gets very important information about his/her own progress in performance. In addition to other areas, it is essential to motivate a player to practice, to participate in creation of his/her own self-regulation, that influence his/her aspirations.

7.1. The essence of game performance assessment

What is the essence of assessing the game performance? Assessment of the game performance expresses the learning/training results, the effectiveness of the learning/training process, and the pupil/player activity in relation to what the teacher/coach wanted him/her to learn. The assessment fully reflects the overall character of the learning/training process, reflecting the focus of the educational process, its objectives as well as the social relationships in this educational process. The assessment is also directly related to the level of the teacher/coach and pupil/player relationship.

Assessment in the match during the training process fulfills several functions. On the one hand, it is the informative function – it informs what results pupils/players have achieved in the observed areas of evaluation (this also includes the controlling functions). It also give us information about the cause of pupil/player's failure. On the other hand, the second very important function is the formative function. The assessment is not only the holder of some information (informative function), but it also serves as a certain stimulus for personality development (formative function).

Looking to the sport preparation—diagnosis of game skills is one of the most complex and complicated tasks (areas). For these reasons, the coaches prefer to evaluate some other aspects of game performance, which are much easier. In which the validity and reliability of the tests are more thoroughly researched and easier to done (e.g. strength and conditioning abilities, fitness).

Assessing the game skills is therefore much more complicated because the technique and its nuances are very complicated to recognize, it is subjective assessment. In school physical and sport education in thematic unit of sport games, tests of motor skills (individual game activities) have long been used for the assessment of pupils. This traditional way of assessing is used by teachers who teach sport games with the traditional/classic approach. We think, in accordance with [25] that pupil/player's assessment methods have to be identified with the content and the way of teaching. When we get information about the performed game activities, it is usually necessary to describe verbally this information, because informative value of the performance may not match to an idea of perfect acquired game skills. Our consideration is rather directed to offering authentic instruments usable (not only) in the approach – teaching games for understanding. Therefore, if preparatory/small-sided games or own game (match) dominates the content, so then we should assess the pupils/players in this activity. This assessment is particularly relevant for the lower age categories so that young pupils/players receive adequate information on their progress (improvement). An important diagnostic source is the match, which represents the basic way of realization of the sport game. The performance of the pupil/player in the match is the final (goal-oriented) side of the teaching/training process. Diagnosis of game skills requires many experiences and must be based on the concrete ideas of the correct execution of the game activity, which gives the possibility of a certain confrontation when evaluating and assessing the real performance of the pupil/player. A particular importance here is attributed to the descriptive characteristics that reflects how teacher/coach can "read" the game and how he/she can "read" his/her pupils/players.

How he/she knows predict critical game situations (places with a potential shortage or the most common mistakes by performing), and what kind of consequences it can be drawn from this performance or what kind of thought can be taken to preparation a new training. Young pupils/players can assume neither the high stability of game performance nor the "full" automation of the skills, which are for game performance an integral and essential part.

In the study of [85], the relationship between individual constraints and task constraints has led to improvements in representative task design for tactical expertise assessment. To assess the tactical expertise of youth football players in representative task may lead to a better understanding, it is possible to determine the exact expertise level of players, and to plan better training process in regards to players' needs.

7.2. Teacher/coach's assessment language

Now the teacher/coach does not manage the assessing (an expert's method) only with the mark. This assessment should always be completed with a verbal commentary, discussion of appeared mistakes. Teacher/coach should not start with the "stamping" of their pupil/player (giving him/her some sticker) if it is negative or positive assessment, because pupil/player tents to behave as to confirm the meaning of that "sticker". Motor skills test neither take into account the pupil/player's efforts, his/her social involvement (cooperation, participation, cohesion and communication) nor pupil/player's cognitive processes.

7.3. Game performance assessment methods

We have to distinguish two qualities in the game performance assessment – individual game performance and team game performance. The key method is observation and expert's assessment [28, 86–87]. Observational techniques are generally divided into objective and subjective. Subjective assessment is based on the work of an observer who evaluates the individual game performance in whole extent or only several of its parts in accordance to own opinion. Objective assessment is currently the most widespread method of game performance in elite sport. This assessment is based also on observation and analysis of the player's activities during the match but because of objective records techniques. A valid and reliable assessment method for evaluating game performance in preparatory/small-sided games in football and handball has been created by [88]. The method is aimed at evaluating two components of game performance: decision-making and realization of the game activities. We think that, in particular, the decision-making component, which is divided into three categories, is very difficult to judge. Component two – asking the ball, but also third component of decision-making in the defensive phase of the game – defending is also very difficult to judge, although the reliability of the method proved to be good (according to Cohen's Kappa coefficient). In school sport two methods were developed – GPAI (Game Performance Assessment Instrument) [21] and TSPAP (Team Sport Performance Assessment Procedure) [89]. These methods also make it possible to evaluate the tactical aspect of the game performance, and the game activities of the players without the ball. In the school physical education, it is possible to use expert's evaluation of game performance by three or five independent experts. Scoring range vary from 5 degrees to 10 degrees. Each grade corresponds to the different quality of the game activities performed or areas of game performance. The next assessment tool is Game Performance Evaluation Tool (GPET) developed by [68] can be applied to trainings units and teaching process. When using GPET, teachers/coaches can choose specific tactical contexts and, within them, the components of that context. If coaches assess and evaluate the game performance in the conditions of large-sided football training games [90], or small/sided and conditioned football games [91] we always find new questions for research of tactical constraints for technical-tactical alphabetization in football [92].

The last area of the assessment is the area of evaluation of special knowledge and tactical acting. The most common method (diagnostic tool) is a written test or exam. Using such tests, we gain information about the level of pupil/player's special knowledge. Authors [86–87] used such an assessment with junior players and youth players who were from the national football teams from Slovakia. Test of similar focus for assessment of special knowledge of pupils in badminton used [22].

Test for tactical knowledge assessment validated [93] among 465 children at three different sporting contexts in a week spare correlation test Test-retest with the help of 7 experts who were selected under the specific criteria. The result was that data indicated adequate construct and concurrent validity of the Soccer Tactical Knowledge Test (STKT) to assess the tactical knowledge level of the respondents. Taken in consideration the results of individuals in Soccer Tactical Knowledge Test (STKT) then age and dependence to sport context of the football (school football, recreational football and specific football training) correlated significantly

with the tactical knowledge [94]. The scores in tactical knowledge of individuals were higher in individuals involved in specific football training and recreational football than in individuals from school football. The differences in individuals between specific and recreational footballers were not found.

8. Motivation and motivational teaching

Motivation is an important factor that determines direction, intensity and duration of an activity. Motivation is key factor that influence performance. Motivation is the trigger for the initiation of an activity [95]. With another words, motivation is the reason for doing something, how hard to be involved in this activity and for how long to sustain in this activity [96]. Motivation is about pupils or players independent activity to do something.

Motivation is the way to accomplish some goals. Goal orientations explain the way individuals seek the fulfillment of their goals [97]. Goal orientation determines pupils or players willingness to exert energy in a learning or training process. Learning is defined as a permanent change in one's behavior due to a given experience. The results of authors [97] reveal that the learning goal orientation has significant positive relation with training motivation and it reaps significant learning outcomes. The study of [98] determined significant ($p \leq 0.01$) differences with a large effect size ($\eta 2 \geq 0.14$) in the performance motivation of the elite, recreational athletes and non-athletes. Further research in this field of study should focus more of the performance sub-motives in the performance of all athletes, but especially in elite athletes. Learning Intrinsic and extrinsic motivation can explain what causes motivation.

Teacher or coach is a facilitator of motivation and he or she is the one who can encourage motivation in his or her pupils and players to learn tactics. In addition, to learn tactics has to have clearly defined goals what to do in the lesson or training. When pupils or players have control about mastering goals, they stay be engaged and active. The sense of having control about fulfilling the goals is important for being motivated. To stay motivated it is needed to change teaching methods, teaching tools and results expectations, because the brain need work with the novelties to think in a new way and to find new solution. The didactic approach for that who wants master goals, should relate new knowledge to previous knowledge.

To motivate somebody is based on an individual approach, because no one is the same and there is much more likely that it is not sufficient only one motivational idea for all. Teacher or coach is a person who try to find out the player's motivation also with the methods of pedagogical diagnostics (observation and questionnaire). One of the best practice of motivation is to be exited of what man do and share enthusiasm. Cherniss [99] said that transmission of emotion is the basis of any influence; our ability is to attune ourselves to or influence the emotions of another person.

Enjoying the learning is the aim of motivation, because some kind of enjoyment and pleasure while learning is intrinsic motivation, which is responsible for the persistence in completing a certain task. When more interesting and more relatable to pupils or players the learning of tactics is, then they stay more motivated in doing things. To succeed in any activity this is the

powerful motivation when the path to success is not too long. The experience of success or failure greatly affects motivation for performance. Nowadays it is the problem in the school environment in physical and sport education not only how to teach, but also what and how to evaluate, because the evaluation is the factor of success and success is the factor of motivation. It is fun to learn something new, to become more powerful; it is fun and enjoyable feeling (sometimes from pleasant, but sometimes from exhaustive fatigue); it is fun to think that the next performance of the activity will be better than it was done at the actual time. Active and conscious use of experience is the basic of social learning where the experience of the previous activity directs the regulation of the further activity [100]. Simple task, which pupil/player preform very easily, does not sufficiently motivate him/her and does not support the relationship to learning. On the contrary, too complicated task demotivates the pupil/player, it discourages him/her from performance and he/she searches the way of escape from the activity. That is why we should look for a way how, in which form or after which pupil/player's manifestations and expressions need to be pupil/player encouraged even when he/she is not the best in the class/team. Due to long-lasting frustration of success deprivation, socio-pathogenic factors as a fear and the need to avoid failure can begin to appear. That is why these pupils/players start to gradually avoiding physical activities in not only school/club environment but always and anywhere.

To create safe environment and supportive atmosphere is the essential part of teacher's or coach's work at the beginning of the lesson or training unit. The art of teacher's or coach's work is to raise interest in exercising and readiness to learn [101]. The art of his or her work is how to work with pupils or players to regulate their energy to staying engaged in meaningful activity, how to achieve an adequate working creative and emotional climate of learning, how to ensure an emotional attunement to the educational process among all participants. The art of the teacher or coach is how to recognize the inner side of the pupils or players for successfully influence pupils' or players' motivation in the desired direction and to prepare pleasant experience from physical education or sport training. If pupil's or player's experience is pleasant and motivational, they will search for and try to repeat pleasant experiences. When somebody is motivated then is oriented toward higher performance. This is what teachers or coaches want. They want to motivate their pupils or players during lessons in accordance to the topic of learning and internal state of participants in the process. No one is with the same of level of motivation to learn. Teacher or coach is the right person to find and recognize the motivational profile of pupil or player [102]. Every one person involved in teaching-learning process deserves individual attention. [82] found that teacher behaviors associated with encouraging approach and creativity in the classroom were associated with students' positive engagement and self-expression.

The TGfU approach teach democracy in the school [36] and players focus on creating play as a shared experience, not just on being winners. With reference to [103] who mentioned the effects of teaching the TGfU models for the pupils' motivation also in extracurricular physical activities, it is clear that motivation is constituted as a key factor that can influence participation in physical activities. The game is fun for pupils and they want to play and have fun inside and outside of the school too. The results of investigation of [104] suggests that the Sport Education curriculum (basketball) may increase perceptions of a task-involving climate and

perceived autonomy, and in so doing, enhance the motivation of high school students toward physical education by creating an environment that better caters for self-improvement, choice and equity for students. Repeated measures ANOVAs showed significant increases in student enjoyment and perceived effort in the sport education group compared to group with traditional teaching approach.

The motivation to do something is when the goals and task of physical education lessons or training units are given in an appropriate and clear way for pupils or players. The motivation arise when there is enough information and when the main person of the process (teacher or coach) is interested in pupils or players, trust in their abilities and appreciate their qualities. Persons who belief they are able to do something in considered matter are much more likely to be motivated in terms of effort given to accomplish the activity and on the contrary, those who thing they are less able, do not belief in success and are not motivated [105].

Researchers [106] shows in the results of their study that many of the students did not understand what they were supposed to learn in physical education. They stated that if the goals are well articulated by the teachers, the students are more likely to understand and be aware of the learning outcomes and what to learn in physical education. If the goals are not clarified, students find it difficult to know what they are supposed to learn. The effectiveness of learning is dependent from the quality of teacher's or coach's pedagogical skills. The teacher or coach motivation to teach and train reflects the pupils or players motivation and learning outcomes. The conclusion of the study of [107] provided evidence that autonomous motivation for teaching is associated with the use of teaching styles. Productive styles were more strongly related to intrinsic motivation and reproductive teaching styles related to extrinsic motivation of the teacher.

Pedagogical communication is a key as how to influence the reaction of the pupils or players to whole process. Verbal and nonverbal communication on both sides of teaching process show what kind of relationship is in that classroom climate. Symmetric communication (pupil/player with pupil/player) is about dynamic interaction, and teacher/coach can observe all the body language and relations during the working time of education. Then in asymmetric communication (teacher/coach with pupil or pupils/player or players) can the teacher/coach give emotional support for motivate somebody (active listening, asking questions, shorten the distance in communication – shorten proxemics, try to guess the person feelings, reassure the person in all the situation, provide the steps of action).

Due to the worldwide increased popularity and participation in football, many teacher and coaches have opportunity to present some of famous footballers, male or female, as a role model for their pupils or players. To adore some role models will cause an inner desire to be like them and to follow the same life path, what can be very motivating.

9. Conclusion

The theoretical elaboration of the various approaches to teaching sport games preceded their research verification in practice, although the incentive to create a theoretical framework of

some approaches has come from practice. Certainly, however, it is necessary to further verifying these approaches, which would not only clarify their practical use in terms of the character of sport games, but also in terms of age, gender, performance of the pupils with focus to fulfillment of educational and training objectives and their motivation for sport activities, motivation for sport game selection. The question remains the length of the effect of the selected approach and thus the length of intervention of the selected approach needed for the improvement of the pupil/player's game skills, tactical acting in the match.

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Conflicts of interest

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Chapter 3

Empowering Athletes with the Sport Education Model in Youth Soccer

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Additional information is available at the end of the chapter

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Abstract

Athlete empowerment accentuates giving athletes autonomy for decision-making with the clear purpose of offering them opportunities to make choices, be responsible, and develop higher levels of motivation. The focus in Sport Education is on placing the athlete in the center of the experience where the participant can become competent, literate, and enthusiastic as a result of participation. This is in line with the nonlinear pedagogical approach, where the learning processes can be structured by manipulating performer constraints. Therefore, this chapter focuses on examining and understanding the processes involved in athlete learning through manipulating performer constraints when using the Sport Education model in Finland. Twenty-three players and their three coaches from one junior sport club participated in the study. The Sport Education season consisted of 11 practice sessions over 8 weeks. Data were collected through interviews, observations, questionnaires, and document analysis. Results suggested that players were united within their small teams and that they enjoyed having the autonomy and responsibility. As a conclusion, the Sport Education season implemented through manipulating performer constraints facilitated perceptions of empowerment, which in turn fostered motivated players.

Keywords: athlete empowerment, Sport Education model, performer constraints, athlete-centered, youth soccer

1. Introduction

Traditionally, coaches have been preoccupied with merely enhancing athletes' physical, technical, and strategic skills, and therefore they in all sports predominantly tell the athlete what to do, and the athletes' role is to listen, to absorb, and to comply. Coaches are even fired for

not controlling their athletes [1]. This coaching where all decisions are made by the coach is defined as coach-centered [2] and is a disempowering form of leadership which takes ownership and responsibility of sporting experiences away from the athletes [3]. An opposite is the athlete-centered approach to coaching which empowers athletes to gain and take ownership off the coaching processes [4].

There is a momentum in empowering athletes to take responsibility for their own learning and performances [5]. Athlete empowerment highlights athletes having autonomy for making decision with the goal to empowering athletes to make choices, develop higher levels of motivation, and learn how to solve challenges [3]. Cassidy et al. [6] concluded in an overview that an "empowered" athlete is actively stimulated to participate in directing and shaping their athletic life, including tactical strategizing and the content and delivery of training sessions. Such an approach could lead to increased commitment from athletes because they are making a greater investment of self in the process [5]. While many have put forward statements about the benefits of athlete empowerment in sport coaching, researchers ask for in-depth examination of existing practice, philosophies, and ideologies regarding the implementation [5, 7, 8].

Nevertheless, the significance of empowerment and autonomy support has also received research attention with using game-centered approaches in teaching physical education. Results have shown higher physical activity levels [9] and also an increased intrinsic motivation level [10–12] with such a teaching focus. As a summary, researchers [13, 14] highlighted the role of practitioners in providing autonomy support, structure, and involvement to athletes which means that coaches, for example, provide opportunities for choices, give athletes opportunities to take initiatives, and avoid using controlling motivational strategies.

Even though there is a current international trend [Canada, Finland, New Zealand] to use the term "athlete-centered" to describe both an approach to sport and a philosophy of coaching, there is a lack of empirical research on athlete-centered coaching. In addition, for athlete empowerment principles and frameworks to also be effectively incorporated into coaching strategies, examples of good practice are needed. Although a number of successful coaches (e.g., Erkka Westerlund in ice hockey and Steven Hansen in rugby) have demonstrated that an empowerment approach to coaching will enable performers to succeed, the implementation of this approach would be neither straightforward nor unproblematic. Nelson et al. [8] even indicated that "coaches and coach educators choosing to use this approach would in essence be choosing to fight against the existing dominant discourse and its associated practices and expectations" (p. 526).

2. Nonlinear pedagogy and Sport Education

Based on a motor learning perspective, nonlinear pedagogy can provide a practically demonstrated and theoretically organized explanation on how to structure teaching and learning in a nontraditional way in sport and physical education [15, 16]. A fundamental role is played by manipulating key constraints affecting each individual player during learning and performance of game skills [17]. These constraints are in general classified into three diverse categories: task, environment, and performer constraints [18]. *Task constraints* refer to the goal

and rules of the activity, the learning location, instruction, and equipment used; *environment constraints* include the social-cultural and the physical environment; and the specific structural and functional characteristics of learners can be categorized as *performer constraints* [19].

Here we attempt to extend the motor learning perspective into the pedagogy of coaching and teaching and to show how a nonlinear pedagogy can provide insights on learning designs emphasizing the role of the performer. Additionally, a nonlinear pedagogy approach has been suggested to provide practitioners with key pedagogical principles to strengthen teaching [20]. Although most evidence in the literature at this moment has been from elite sports, Chow [20] noted that "it must be recognized that nonlinear pedagogy does not advocate a fixed 'progression' on how teaching and learning should occur" (p. 481). Williams et al. [21] also indicated that promoters of nonlinear pedagogy acknowledge that learning is not predictable and therefore cannot be illuminated through simplified instructional strategies. However, the most common way in which coaches and teachers have attempted to improve learning is typically by manipulating task constraints [22–24]. There is a paradox; on one hand, Renshaw et al. [25] stressed that "teachers will manipulate task constraints to provide new challenging games throughout the lesson" (p. 468), while others [20, 22, 26] advocate that nonlinear pedagogy is student-centric and empowering and where the focus of is on the individual learner. Thus, students are encouraged to explore and take responsibility for their own learning, and then a nonlinear pedagogy approach provides such a context where learners are motivated to learn [22, 26]. In creating such an intrinsically motivating learning environment, there is a need to a facilitate opportunities for players to feel a sense of autonomy, similarly focusing on learner-centeredness [20, 26]. Therefore, athletes need to be in a realistic learning environment where the performer constraint is modified so that they can make relevant and informed decisions based on their own, team mates', and opponents' capabilities [20]. In advocating for nonlinear pedagogy as empowering with a student-centric focus and meeting the call for moving away from classic coach-centered drill coaching, Siedentop's [27] encouragement that Sport Education was designed to place the player at the center of the sporting experience might be a way to pursue.

By adopting a more democratic and inclusive pedagogy, the development of a competent, literate, and enthusiastic sportsperson is the key learning outcome in the Sport Education model [28]. These objectives of the Sport Education model relate favorably to the positive predictors of intrinsic motivation. A competent sportsperson has developed the skills and strategies to the extent that he or she can successfully participate in a game. A literate sportsperson is someone who understands and is knowledgeable about the rules, traditions, and values associated with specific sports. An enthusiastic person plays and behaves in ways that enhance, preserve, and protect the sport culture. In order to achieve these authentic and developmentally appropriate learning experiences, Sport Education has several key features [28] that distinguish it from traditional physical education but that are also easily implemented in a youth sport context. Most characteristically, units are organized as sport seasons that continue for an extended period of time. Students are assigned to teams that remain the same for the whole season. These teams are the cornerstone for the development of a sense of identification and affiliation among students. Students receive increased responsibility and take on roles additional to player, such as coach, referee, manager, trainer, statistician, and so on. The season has a competition phase, and at the end, there is a festive event. A principle of Sport Education relevant for youth soccer is that

all players get equal opportunity to participate, which is achieved using small-sided games. According to Siedentop [29], however, teachers will make individual changes to the model, and he suggested site-specific modification based on their contextual knowledge. Teacher modifying the model has also been identified in several studies [30–32].

Sport Education has received large attention in the sport pedagogy literature during the last two decades. Comprehensive reviews of literature [33–38] present empirical evidence that Sport Education is a positive experience for students and teachers in a variety of settings in physical education. From a youth sport and nonlinear pedagogy perspective, it can be concluded that Sport Education effectively promoted students' participation in the student-centered learning tasks (performer constraints), and being members in teams stimulated students' personal and social development in the form of increased trust, cooperation, and accountability. Thus, they are involved in tasks that encourage decision-making, critical thinking, and problem solving, while the teacher is guiding them to discover knowledge and to create their own understanding. Moreover, the perception of an ownership of instruction was important for the significant student enthusiasm. As a result, student verbal exchanges and dynamics were focused on content concerning practicing and playing games [39]. Although, Hastie et al. [40] noticed the support for Sport Education with regard to motivation theory, they proposed more research to study how empowerment and autonomy can be created in a Sport Education season and how students perceive it.

Despite these strong empirical and practical benefits, the Sport Education model has yet to be validated within a youth sport context. Researchers [36, 41] have proposed that there is a need to extend research on Sport Education from school physical education to sport clubs. Also Penney et al. [42] noted the lack of connection between the Sport Education model and the wider youth sport context and suggested collaboration that the Sport Education curriculum model can be extended to extracurricular and community-based youth sport contexts. Therefore, using Sport Education in a youth soccer team would be a good way to start to modify the performer constraint. In addition, Chow [20] highlighted the importance of examining and understanding the key processes involved in learning while implementing a specific approach in teaching and coaching. Thus, in this study the purpose was to examine and understand the processes involved in athlete learning through manipulating performer constraints when using the Sport Education model in Finland.

3. Methods

3.1. Participants and setting

Twenty-three players participated in this study (10–11 years of age) from an age group soccer team in mid-Finland. Most of the players had been with the same coaches and in this team for 5 years. The team consisted mainly of players from middle-income households and was representative of the local community. Even though it was a boys' team in a boys' league, two girls participated, and they were average- to high-skilled players. The coaches and the players' parents provided a signed informed consent prior to data collection. The three male

coaches had a background as soccer players, nonetheless from an elite level. They were all coaches because their child played on the team and had at least some years of coaching experience. In addition, they had taken part in a basic soccer coach education course. Neither the coaches nor the players had experienced the Sport Education model.

3.2. Design and procedure

The three coaches were at the outset invited to a presentation about the structure of Sport Education model, including research findings and theoretical underpinnings. They liked the idea with player empowerment and autonomy. The researchers and the coaches mutually planned the season based on the Sport Education model. The coaches formed the teams based on the players' skill level and on their previous attendance in practice. The coaches and we defined the responsibilities for captain, fitness and skill coaches, and referees. These typical roles in Sport Education would rotate from session to session.

In order to establish the Sport Education format in practice sessions, the first and the second authors organized the practice sessions, while the three regular coaches facilitated the sessions. Depending on matches and the availability of training facilities, they practiced three or four times a week. Overall, the team participated in an 11-session Sport Education season during 8 weeks. They also had practice matches and tournaments, and regular coach led practice sessions during this period. The structure and progression of the season followed the traditional three-phase format in Sport Education, with an introduction and skill/role development phase, a pre-season scrimmage phase, and formal competition. This structure is outlined in [43], while the current paper is part of a larger project.

At the introduction session in a classroom, the first two researchers explained to players the idea of Sport Education and the specific responsibilities related to the different roles. The captain of each team was responsible for the team conduct and the diplomas; fitness coaches were responsible for warm-ups and skill coaches for designing and implementing skill practice. Each team had to figure out a name for the team. The researcher provided instructions about generic warm-up activities, and a short basketball game in the assigned teams ended the session. Most parents attended this session. The teams' private Internet site was used to post role descriptions, team members, and a role rotation schedule.

During the pre-season phase, players were in their teams with practices led by the players [fitness or skill coach]. The regular coaches supervised and encouraged all players, while the researcher managed the structure. No formal records of game results were kept during this phase. The Sport Education season included a culminating tournament during the last practice session where all teams played against each other. All players received recognition in form of diplomas during the final award ceremony.

Each practice session began with practice in their small teams for 45–90 min sessions during the pre-season phase started with warm-up fitness routines (fitness coach), followed by a skill practice (skill coach). Each session had a specific focus for skill practice (passing, boll control, heading, turning, dribbling, faking), which was provided by the regular coaches. The practice session terminated with the four teams playing small-sided games with player referees in a

rotating schedule from other teams. The regular coaches were referees during the final session with formal competition, where the teams played a round robin tournament. Only two teams played small-sided games in the smallest practice hall, while one team officiated, and the fourth team had fitness practice in a small fitness room. The players were permanent members of the same team, although due to players' absences during some practice sessions, we combined two teams into one team. The number of players participating in practice session ranged from 11 to 20 players, with an average of 16 players. While players were absent when they were supposed to be in charge of duty roles like skill or fitness coach, other players in the same team opted voluntarily to take over the responsibility.

3.3. Model fidelity

The lack of a report on the researchers' attempts to maintain fidelity has been one concern in analyzing research on model-based teaching in physical education [44, 45]. Therefore, a seven-item checklist with benchmarks was adapted from [46] to confirm the behavioral fidelity of the model implemented. Benchmarks included in this study were season, team affiliation, student roles and responsibility, game play, formal competition, culminating event, and festivity. The first two researchers planned and implemented the model, and each practice session was planned to confirm the existence of Sport Education benchmarks in the study. The first author was a faculty member at the university and has conducted studies with Sport Education, as well as he has several years of experience of teaching Sport Education to preservice and in-service teachers and in a local high school. The second author was a graduate student and had experience of Sport Education from university courses and student teaching. Weekly meetings were held to discuss solution to various problems and to deal with other queries.

3.4. Data collection

A mixed methodology approach has been suggested to give valuable data in understanding implementation of model-based practice in teaching physical education [47, 48], and therefore we used both quantitative and qualitative data collection and analyses. The design of this study combines strengths from both research methods aiming at more robust results, which is needed when examining the key processes of learning [20]. Quantitative data were collected by a questionnaire, which consisted of five items assessing perceived autonomy. Each item was answered on a five-point Likert scale and was based on components of previously validated questionnaires in physical education or youth sport context [49, 50]. The players answered the questionnaire initially during the introductory session (16) and finally at a regular practice session (17) when the Sport Education season was completed. However, 12 players participated in both of these sessions. Qualitative data were collected through participatory and nonparticipatory observations and informal and structured interviews throughout the Sport Education season. A total of 24 formal and informal interviews were conducted, of which 19 were individual and 5 group interviews. Twenty interviews were conducted with players and four with the regular coaches. The purpose of these interviews was to capture their experiences, engagement, and perceptions of empowerment and autonomy during a Sport Education season.

All interviews were recorded and later transcribed. Each practice session was videotaped, and the camera was located in the facility so that it did not interfere with the activity. The second author acted as the primary interviewer and observer and similarly wrote and kept all observation field notes. Field notes were taken during and after each practice session and were completed after viewing the videotaped session each week with a focus on both the players' and coaches' actions and comments. The first and second authors met weekly to look at the data and discussed the interview procedures and questions.

3.5. Data analysis

For quantitative data, pre- to posttest change in perceived autonomy of the players was investigated using a paired t-test, and partial eta-square was presented as effect size. To achieve familiarization with the qualitative data, the first and second authors repeatedly read field notes and interview transcripts. Data were analyzed using an inductive constant comparative approach. First, data was reduced down into meaningful units, and then units with similar properties were collated to form broader themes. Several steps were taken during analysis to facilitate trustworthiness and credibility [51]. A researcher journal was used to keep track of the data analysis which increased the confirmability of the study. Verbatim quotes from field notes, players, coaches, and parents were retained in order to stay close to the data and for the result text. Quotes are identified by coach number or player pseudo name. The strategy of triangulation was on two levels employed to assure credibility and confirmability [52]. First, findings were confirmed through data triangulation by comparing field notes and interview data from different groups. Secondly, peer debriefing sessions between the first and second authors involved the researchers challenging each other's interpretation of the evidence.

4. Results

The Sport Education model provides player empowerment and the responsibility to influence, decide, and even select practice content themselves. With the help of the questionnaire, we have investigated players' experience of autonomy during soccer practice and whether participation in the Sport Education season has affected their perceived autonomy. The results showed no significant differences in perceived autonomy between the pre- and posttests. However, the results showed that the players to a relatively high degree experience autonomy and that the level of perceived autonomy was higher after the Sport Education season (see **Figure 1**). Although there were no significant differences in the players' perceived autonomy, the results show that there is a trend as also the effect size analysis indicates. After the Sport Education season, players have indicated higher values for four out of five of the individual items of perceived autonomy. The largest differences are that the players think they have better opportunity to say their ideas and opinions ($t\ [11] = -1820$, $p = .096$, partial $\eta^2 = 0.10$) and that the players consider that they have a better opportunity to choose exercises

Figure 1. Players' perceived autonomy at the pre- and posttests.

in practice sessions (t [11] = −1.332, p = .210, partial η^2 = 0.06). The fact that the players do not feel more free to do things in their own way in postseason data is interesting. Although Sport Education gives more responsibility to players and allows them to decide and have an influence, they still perceive that they cannot do what they want and rather they have to follow the existing rules and listen to those who are responsible as a player coach.

Based on the qualitative data, results about empowerment and autonomy are divided into two themes. The first theme is about *being responsible*, how they perceived it, and how they were responsible during the Sport Education season. The other theme was *to choose and decide*, as it appeared from several players that they liked to select practice content themselves. This theme also includes how they planned and were prepared to coach their teammates.

4.1. Being responsible

One goal of the Sport Education model is to promote empowerment by giving them responsibility roles and allowing them to be responsible for the practice [28]. Our interviews showed that the players as well as the coaches highlighted responsibility as a central concept when describing the model. Adrian (player) described the model by "you have to be able to take responsibility." Coach 1 also noted "It is exactly this about responsibility, that it is they who are going to coach the practice sessions and make sure it works."

The players and coaches were positive and looked forward to the Sport Education season in the beginning. The players thought the model seemed interesting and that it would be fun. The coaches also liked giving players more responsibility, and they believed that the players will grow by taking responsibility and similarly show higher engagement in practice seasons. They believed that the majority of players will be able to take responsibility, but for some it will be more challenging.

Observations showed that the players were responsible and that they managed to fulfill their responsibilities. The players were serious about their roles and were responsible to plan practice

sessions properly. No player was afraid to accept roles, and they were usually volunteers to assume roles if any player was absent. During the season, players assumed during several sessions responsible roles as skill or fitness coach even if they had not prepared themselves well. Despite the fact that the players had not prepared themselves, "Theo volunteered to be fitness coach and Gabriel skill coach, it went well even though they had not planned this practice session in advance" (field note). Even the more discrete and reluctant players took their roles seriously and succeeded in this in most cases. In addition to the players taking responsibility for coach roles, they also took responsibility in their team by focusing on team tactics and how to improve the game. This to the extent that the coaches were positively surprised at how well the players succeeded in taking responsibility during the practice sessions. As Coach 2 said, "Sometimes you think they are so young, but now they are taking responsibility and you can probably give them more responsibility. They can many times manage much better than you think they can do." During the interviews after the Sport Education season, all interviewed players explained that they liked the season, and Adrian noted "I think I've improved in taking responsibility."

In addition, the players encouraged and gave feedback to each other. Especially the high-skilled players often helped the weaker players by giving them feedback and tips on practice tasks as recognized in the field note; "the high skilled player helps the low skilled to explain and organize practice tasks. [He] provides hints and motivates." What specially caught our attention during the practice sessions was the good leadership that many of the players showed in their role as skill coach; "some are innate leaders and enjoy their role as skill coach, however, everyone seems to enjoy being a coach and they are engaged" (field note).

4.2. To choose and decide

Another goal of the Sport Education model is to improve the motivation level of the players by supporting their perceived autonomy [28]. Previous research has shown that when the participants feel that they can have an influence and make decide themselves, they experience autonomy and are more motivated [35]. Adrian, Alexander, and Adam liked the Sport Education season particularly because they could choose and decide themselves. Also Gabriel pointed out that the best thing about the practice sessions was that the players themselves could be in charge for the practice sessions and small-sided games. The fact that the players were aware that they themselves can determine can be derived from Adrian "when we play soccer so we are coaches, warming up each other, or as one decides the warm up and then another coaches the skill part" and from Alexander "that we can choose what we should do and so on. And then we are in different groups and then we can come up with a name [for the team]."

Coach 2 thought it was a good thing for the players themselves to plan practice sessions, because they have to think about it and that the players may also notice that it is not always easy to plan practice sessions. Also Coach 1 highlighted that it is good for players themselves to plan and to have an influence and said "having to think and plan themselves, also means that they think when we do something. It's not just getting there and throwing in the balls and like what should we do right now."

The observations showed that the players were serious about planning and that they prepared themselves at home before the practice session. How the players prepared and how

Figure 2. One players' plan for skill practice.

they went to choose the content varied. Several of the players wrote down exercises on paper (see **Figure 2**), while others only thought about how to do the session. Our field notes from practice session number eight support this: "all players had once again planned all practice tasks."

Coach 2 mentioned that the players actually thought about the practice tasks and that many have made figures and had a lot to tell about the actual implementation of the practice tasks. The coaches thought that the players essentially got ideas for their practice tasks from the team's regular practice sessions, but they also noted that the players used other tasks. This can be seen in what Adrian said: "I skimmed through [my ideas] if passing was the theme, so I thought a bit of what you might have for tasks and then I look up from the computer."

5. Discussion

The purpose of this study was to examine and understand the processes involved in athlete learning through manipulating performer constraints when using the Sport Education model in Finland. The results from this study provide initial evidence that young soccer players were empowered through participating in a Sport Education season as their roles shifted into a more active position, and the coach became more facilitative. Even though this study was implemented in only one soccer team, it adds to the existing literature supporting the use of Sport Education in players gaining and taking ownership of the coaching processes [4, 53]. In

addition, we also acknowledge that the nonlinear pedagogical approach was student-centered and empowered players to become active learners through the manipulation of performer constraints [22].

Our results suggest that the structure of the Sport Education model has many commonalties with an athlete-centered approach and athlete empowerment for fostering an environment where athletes are provided desired choice and joint decision-making in the coaching process. While examples of such an environment have been asked for by researchers [5, 7, 8], this study showed promising evidence of what works in a coaching context.

One of the main claims made for Sport Education is that it generates greater participant interest, involvement, and motivation during practice sessions [36, 54]. In general, the players in this study expressed that they had "fun" and enjoyed the sessions and the Sport Education season successfully brought about positive changes in players' perceptions of autonomy. The increased autonomy in several indices is consistent with findings [55] reporting increased autonomy in physical education classes. However, an important finding is that the players indicated that they could not do whatever they wanted to, which points to an increased autonomy within certain limits. Thus, the Sport Education model appeared to increase the motivation of players and kept them on-task throughout the sessions. Therefore, these young players benefitted from being placed in soccer environments that allowed them to process information and make decisions based upon their understanding of their own, teammates', and opponents' actions.

Empowerment is one of the most important attributes of motivation toward physical activity, and the Sport Education model effectively showed that players were engaged and successful in responsibility tasks despite their young age. They spoke passionately about their experiences in the Sport Education unit because they could decide themselves and be responsible for their own actions. These positive affect and empowerment indices are consistent with findings [56–58] reporting increases in enthusiasm and enjoyment among students in Sport Education classes in physical education. The findings also lend support to previous motivational research on the positive effect of teachers or coaches facilitating athlete choices in physical education or youth sport contexts [13, 14]. Therefore, the pedagogical principles of Sport Education are relevant and effective in learning design where players can develop general competencies, be curious, express opinion, and pursue their interests. Furthermore, coaches thought it was favorable to give more responsibility to the players, and they were surprised how well the players succeeded and how they liked to be responsible. These results suggest that the Sport Education season implemented here facilitated perceptions of empowerment, which in turn fostered motivated players.

Chow et al. [26] also highlighted how a nonlinear pedagogical approach can provide such a learner-centered context where learners are motivated to learn through making decisions on their own to facilitate successful learning and performance. In practical terms, this means that when students engage in the Sport Education model within the smaller teams, the students feel important, are more engaged in the tasks, and gain a deeper understanding. By designing practice sessions based on the Sport Education model that meet the basic motivational needs of each player in the team, it is much more likely that players will be intrinsically motivated.

This study proposes that the structure of the Sport Education model has many commonalties with a nonlinear pedagogy approach for fostering an athlete-centered environment by modifying performer constraints [19]. As such, Siedentop et al. [28] suggested a number of factors when planning a Sport Education unit, and being on the same small team and having responsibility roles are most different from traditional coaching. Being a member of a soccer team, the main role is that of a player. In addition, each player had an additional role during practice and matches and as a member of a team. Our findings showed that players enjoyed having responsibility roles where they could try new things and make decisions. In addition, they liked having other players as coaches. These results support previous research in teaching physical education [56, 59, 60]. From a practitioner point of view, modifying performer constraint will encourage learners to access information and to allow them to set up and run their own practices and games. Thus, they are given voice, and everyone is made to feel important.

The ideas raised in this paper could also inform practitioners to more efficiently activate young athletes by using the Sport Education approach to modify performer constraints [15]. Typically, manipulating task constraints has perhaps most been used by teachers and coaches to change the instructional environment to reach learning goals [22–24]. In order to increase the likelihood of the Sport Education model being adopted in youth sport settings, more work is required by practitioners to ensure the utility of the model by providing opportunities for collaborative formulation, testing, and evaluation of experiences. For coaches with a "traditional" focus, Sport Education will require a fundamental shift in how they coach to better appreciate different learning environments. This approach means that coaches have to stand back and observe and instead act as facilitators and become less directive [20, 25, 61]. However, previous research has shown that it is challenging to shift from traditional directive to athlete-centered focus due to existing cultures [62, 63]. Similarly, it has not always been easy to let the control go and give students additional responsibilities in teaching physical education through the Sport Education model [31, 64]. Thus, it might be natural for practitioners to hold onto existing practices that seemed to work well [20]. That is, although coaches have clear individual differences in their coaching philosophy but are usually implementing one coaching approach with very little variation in practice sessions, we cannot suggest that a Sport Education approach will work for everyone in all contexts. However, based on our results, it would be a valuable effort to give it a try.

6. Conclusion

The most important conclusion that we can draw from this study is that Sport Education has great potential in terms of empowering young athletes. Although the findings of the current study add to and extend the existing Sport Education evidence base by filling some gaps in the literature, there are a few limitations to consider when examining the data. The study involved only one self-selected group of young, mainly male, players. So, we have no understanding of how female teams and athletes would experience this approach. Players' absences were not controlled for, so some players were absent from some of the practice sessions, and they did not complete both the pre- and posttest questionnaires. However, the research designs were ecologically valid [15] and a part of their busy daily lives. Further, given the benefits of

empowerment and autonomy, we did not examine the possible effect on player skill development. Regardless, more research is needed to confirm the effectiveness of the Sport Education model in the development of the whole athlete.

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Chapter 4

Continuing Professional Development with Cooperative Learning in a Professional Learning Group

Ben Dyson, Rachel Colby and Wendy Dowler

Additional information is available at the end of the chapter

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Abstract

Cooperative learning is a dynamic pedagogical model that can teach varied content to a diverse range of students. Students work together in small, structured heterogeneous groups to complete tasks. The purpose of this paper is to explore teachers' experiences with Cooperative Learning during a school-based research project. This research was also designed to gain a greater understanding of Continuing Professional Development within a Professional Learning Group that has the potential to enhance the quality of a physical education (PE) program with non-PE specialist elementary teachers. This research suggests that the implementation of Cooperative Learning or any innovative models-based practice in schools is enhanced by continuing Professional Development. Teachers' implementation of Cooperative Learning was assisted by teachers in this study by being part of a Professional Learning Group to help them reflect, identify, and start to overcome some of the obstacles that arise when implementing a new pedagogical model.

Keywords: cooperative learning, physical education, professional learning groups

1. Introduction

> *Cooperative Learning is working, like learning new things with your group and if you're stuck they will help you and there's lots of encouraging and praising… It helps in other subjects because whenever we need help in any of the subjects we know that someone will help us.* (Grade 5 student).

Cooperative learning (CL) is a dynamic instructional or pedagogical model that can be used to teach varied content to a diverse range of students [1]. In this model, students work together in

structured, small, heterogeneous groups to engage with subject-matter content. More than 1200 research studies have been conducted in the past two decades alone on cooperative, competitive, and individualistic learning in general education [2]; however, the impact on physical education (PE) has been much less [1]. Although less research on CL have been conducted in PE than in general education, existing studies have found that this instructional model can enhance students' PE and physical activity experiences [1, 3, 4]. Within the wider literature around CL [2, 5–8]), and within the literature on CL in PE [1, 9], five elements are considered critical to CL: (1) positive interdependence; (2) individual accountability; (3) promotive face-to-face interaction; (4) interpersonal skills and small group skills and (5) group processing (for details, please see [10]).

The intention of this article is to present teachers with a school-based research project that is less complicated to understand. A great deal of research presented in the major PE journals (*QUEST, Journal of Teaching in Physical Education*, *Research Quarterly for Exercise and Sport Science*) is written in complicated, research jargon. The writers, a university academic (concealed) and a PE teacher (concealed), believe that this school-based research can be valuable for teachers. The writers consider that new ideas and concepts like CL can be better understood and appreciated by teachers if this knowledge is made more easily available to them; the writers also believe that Continuing Professional Development within a Professional Learning Group can enhance the quality of a PE program.

1.1. Theory connected to practice

The common learning theory of social constructivism is grounded in research and practice [11, 12]. More recently, Barker et al. [13] have promoted social interactions emphasizing the need for small group and interpersonal skills in PE. The version of CL promoted in this article was developed from social constructivist theories of learning [9, 14, 15]. Social constructivism offers a practical and appropriate theoretical framework for school-based research and practice [12, 16, 17]. This chapter attempts to connect the social constructivist theory to the practice of teaching PE and hopefully move toward bridging the theory-practice gap.

Cooperative Learning has been integrated into a Tactical Games Approach or a game-centered perspective both theoretically [14] and practically [18]. Because the integration of Cooperative Learning and Tactical Games is a complex and labor-intensive process, teachers will take some time to feel comfortable with teaching Cooperative Learning or Tactical Games or a combination of the two pedagogical models.

1.2. The purpose of this work in schools

The purpose of this school-based research was to investigate the challenges that generalist classroom elementary teachers faced when implementing the CL pedagogy model into their PE classes. Non-PE specialist elementary teachers were part of the school-based, teacher-driven CL Professional Learning Group. One of the current gaps in the literature is school-based collaborative research of CL as an instructional or pedagogical model [1].

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This research project involved the co-construction of CL with teachers within their schools as professional development (PD). PE research suggests that PD needs to be school-based and focused on the day-to-day realities found in the context of the specific school's PE program [19–21]. O'Sullivan and Deglau [20] found teachers wished to gain specific, practical and concrete ideas relating to the daily practices in their classes. Coulter and Woods [18] concluded that "PE-PD should be contextualized and take place in school contexts with children present" (p. 340). Physical education PD programs need to be individualized to the teachers' specific needs as physical educators and engage them with key skills that are relative to content [21, 22].

For physical educators, learning takes place in the complex interactive social world within transforming and changing interpersonal relationships [23]. However, any meaningful change in teaching requires a conceptual shift in the way a teacher presents instruction [1, 24]. Fullan [25] argued that change does not have a blueprint, is not linear, and is loaded with uncertainty. Innovation of a new instructional model or pedagogical practice is problematic at best.

2. Methods

This research used a case study design [26] to explore PE teachers' use of CL as a pedagogical model in four schools. The study utilized a multiple-methods approach based on qualitative research [27]. The researchers engaged in Continuing PD sessions at a university and at schools over a 1-year period involving multiple meetings, emails, discussion, and observations at schools. By working as part of a collaborative research team (the CL Professional Learning Group), university academics, and teachers co-constructed CL curricula in school-based PE programs. This was collaboration *with,* not *on,* teachers.

2.1. Data sources

Participants were 12 teachers from four elementary schools from a wide range of ethnic, cultural, and socio-economic backgrounds. The participants shared their individual experiences through frequent meetings and interviews. Evidence was gathered from teacher post-lesson reflections, a researcher journal, field notes, and documents (such as lesson plans, school PE programs, and meeting transcripts). In addition, the 12 teachers were interviewed at the beginning of the study and at the end of units (an average of four 50-min interviews per teacher). One researcher was assigned as a school connection or *critical friend* to each school; therefore, informal interviews also occurred with each teacher. Each school was visited a minimum of six times during the study.

2.2. Data analysis

Inductive analysis and the constant comparison method were used to analyze these qualitative data [27]. Data analysis involved the inferential coding of these initial descriptions [27]. This was undertaken with the aim of challenging the interpretations of the findings, identifying

conceptual links, and uncovering key categories through frequently challenging the interpretations in peer debriefing sessions with teachers and university faculty and graduate students.

3. Findings

There were some interesting findings from this study, and these are represented in three categories drawn from the data: *Students not possessing needed social skills; Teachers' understanding of cooperative learning;* and *Changing pedagogy to a student focus.*

3.1. Students not possessing needed social skills

Teachers talked about students' lack of the social skills needed for CL. You might relate to this in your PE program. One teacher suggested during the group discussion: "Social skills is top [challenge to CL implementation] definitely—social skills of [students] not wanting to work with that person." The teachers talked about the importance of building social skills from a holistic perspective and referred to the three domains of learning: psychomotor, cognitive, and affective domains of learning.

Teachers in one school identified the following social skills as areas of focus in order for CL to be successful: (1) specific feedback, (2) active listening, and (3) teamwork. For example, one teacher's emphasis on specific feedback helped during the skill practice portion of the lesson. During this teacher's lessons, students were observed giving specific feedback concerning their group member's performance of a skill: "You jumped really far because you used your arms. Nice!" Teachers often commented that they wanted to include all students in the development of social skills and social learning.

3.2. Teachers' understanding of cooperative learning

Although some of the teachers had prior experience implementing CL in their classrooms, none of these generalist classroom teachers used CL in the PE context. The limited level of understanding of PE and CL led to two main challenges: (1) Comprehension of CL structures and (2) level of comfort using CL. At the beginning of the year, several teachers expressed concern that their students were not easily learning the CL structures.

One teacher commented:

> *I thought of CL [as] being very structured and very 'you do it this way and this way'. But I've realised it's a lot of things we already do that involve CL, but we didn't call it that. So it's Think-Pair-Share, which I've done for years, is part of that, but I didn't make the connection that it was.*

At the end of the year, this teacher reflected that one of the challenges of implementation was individual accountability. The CL structures need to engage all the team members and that, to be successful as a group, all the kids need to take an active part.

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3.3. Changing pedagogy to a student focus

Teachers in the four schools believed that CL enabled them to move toward being more student-centered in their lessons, which facilitated students taking more responsibility in a supportive and encouraging environment. Teachers saw students interacting with and teaching each other, not just individually or just with their teacher. A teacher noted "If a problem arises with whatever they're doing and they learn strategies in how to solve that problem," then students take more responsibility for their own learning.

With CL as an instructional model, teachers were able to develop tasks that enabled students to take more ownership. Teachers were able to withdraw themselves from instructing and were able to critically observe what was occurring in their classes. One Assistant Principal talked about how teachers changing their instructions seem to help students to take ownership: "[students] are taking more ownership for what they're doing and taking it a bit more seriously and taking their responsibilities more seriously." In CL, the teacher takes on the role: facilitator of learning and thus shifts their role from director of instruction to a more student-centered approach to teaching. Learning to be a facilitator is more complicated for the teacher. They need to learn to guide their students and not control everything that happens in their lesson. One teacher expressed her concerns for students comprehending all the changes that were required in a CL task. Also, teachers talked about the challenges of students taking on different roles (e.g., coach, recorder or encourager, etc.) in their PE classes. The research findings suggest one way to get students to be more a part of the PE program was for teachers to use CL structures.

3.4. Cooperative learning structures

CL structures are an integral part of using CL as a pedagogical practice. CL structures can be defined as the method of teaching that utilizes strategies for the organization of content and social interaction of students in a classroom or educational setting [28]. The specific, step-by-step procedures of CL structures are used to present, practice, and assess content—some enhance interactions between pairs, whereas others are designed for small-group work, and others for larger groups [10]. Our research [9] suggests that small groups of 3–5 students produce the most reliable results when using CL structures. An example of a simple but effective CL structure is that of *Tip, Tip, Coach*. Many teachers already use this CL structure with their students (**Box 1**).

A second example of a less complicated but productive, CL structure is *Numbered Heads Together*. Many teachers might already be using this structure with their students. This is a modification of Kagan's [28] *Numbered Heads Together* CL structure. Considering the diverse range of students in the class the teacher poses a problem: "What are the different ways you as a group can get the volleyball from point A to point B?" Each student thinks of a response. Then the teammates literally, and physically, put their heads together to reach consensus to answer the question. The teacher varies the time allocated for this task depending on the needs of the students and the complexity of the task. To think about and answer the question, students put their heads together in their group while sharing answers, and discussing.

Students use pre-arranged signal to indicate when everyone knows the group responses. The teacher calls two numbers, and the students who have these numbers assigned to them in the group answer the question together. There are several ways students might respond: a physical demonstration, thumbs up, thumbs down, response cards, white-board responses, or through an explanation. Choosing two students to respond caters for a student who is struggling to answer—this exemplifies one of the supportive elements inherent in cooperative learning. Yes, we want to hold students individually accountable for their contribution, but this is "sink or swim together," and therefore, the group members are always there to offer help and support other group members. The groups should be encouraged to suggest learning cues that their group members need to practice to be able to perform in a game.

There is an alternative format for this scenario: *Numbered Heads Together Perform*. For instance, in a practical example where the students are practicing the different passes in volleyball there are some basic mistakes being made. During the practice task, the ball may be not going toward the target. That is, the teacher notices a common error related to the learning cues of passing in volleyball: the students are not square on to the target. The teacher might pose a question: for example: "How do we solve this problem?" The answer generated by the student team should help the students to perform better and might be as simple as students saying they need to stay "square to the target." The final act is where all students perform their suggested answer to the teacher's question.

There are many variations on *Numbered Heads Together Perform*. The general concept is that the teacher poses a problem. The students independently and quietly consider a solution, join their team members in a group and communicate or discuss their answers together. Then the whole group must reach a consensus about the answer (which creates opportunities to develop small group and interpersonal skills and engage in promotive face-to-face interactions). At that time, the students indicate that they are ready to answer the question. This strategy is similar to the CL Strategy, *Think, Share, Perform* but, in *Numbered Heads Together* students are numbered off in order to hold each student accountable. The teacher calls a random number or two numbers and every member of the group must be ready to answer the question. In Outdoor Education, Coaching or PE examples could include creating: your own game/s, dances, or your own obstacle courses. This structure encourages problem solving for practical games and sport strategies.

A third example of a more complex CL structure is *Pairs-Check-Perform*. Many physical educators already use this structure with students (see **Box 2**). There have been several modifications to *Pairs-Check-Perform* over the last 15 years. One version, below, emphasizes individual accountability. The writers observe that *Pairs-Check-Perform* has also been used by several teachers as a peer-assessment strategy. Below is an example used by Rachel Colby while teaching at Papatoetoe South School, Auckland, New Zealand.

In the CL structure *Pair-Check-Perform*, students are required to work with each other to perform the task but also to check on their team member's response to the task. Students work in their Cooperative Group of four students. Rachel uses *Pair-Check-Perform* to focus on her psychomotor learning objectives for guiding students to learn the forearm pass in volleyball

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(**Box 2)**. The Task: *Pair-Check-Perform* as an assessment of learning cues for the forearm pass in volleyball: bend knees; flat platform; move to the ball; and body angled toward target. Again the groups should be encouraged to suggest learning cues that their group members need to practice to be able to perform in their version of the game.

By using this approach, Rachel felt that she was able to do a better job of teaching students the forearm pass for volleyball. Rachel noticed that students at the upper elementary level have a huge range in ability in their volleyball skills. She uses *Pair-Check-Perform* to check that her students have learned this skill well enough to play in a modified game with their peers.

Think-Pair-Share is a CL structure that has been used for many years by teachers in schools and by faculty at universities. In PE, we adapt *Think-Pair-Share* to *Think-Pair-Share/Perform.* For example, a teacher's instructions could be: "Think—Think about your favorite dance move"; "Pair—pair up with someone and show them your favorite dance move"; "Share/Perform"—the teacher could invite students to share/perform their favorite dance move with the rest of the class.

4. Concluding comments

There is a substantial amount of research to suggest that CL is a successful instructional model of pedagogical practice [1, 9, 29]. The literature suggests that PE has frequently been taught using a traditional approach [30, 31], one that is teacher-focused and centers on the physical domain and often excludes the social, emotional, and cognitive domains of learning. This research supports the research from Lafont et al. [4] and Barker et al. [13] who have highlighted the need for social skills development. The teachers in this study reported a shift toward an inclusive, student-centered pedagogy, a more socially interdependent program and a corresponding move away from a competitive model of teaching [1, 32]. This research suggests that it is possible for generalist classroom teachers to learn and use CL in PE but it also indicates there are struggles. This process required a great deal of support and continuing PD. Teachers in this study needed guidance from the CL Professional Learning Group to help them reflect, identify, and start to overcome some of the obstacles that arise when implementing a new pedagogical model [22]. The implementation of CL (or any innovative models-based practice) in schools must be done through continuing PD [21]. This research in schools suggests that there is a need for further school-based enquiry to understand effective PD and training that has the potential to overcome some of the challenges and allows teachers to develop quality PE programs [21, 33]. Also, we recommend that PETE programs teach pre-service teachers how to incorporate CL and other models-based practices into the PE curriculum. Furthermore, PETE programs should provide Professional Learning and Development for teachers in schools [29]. CL is a pedagogical model that has the potential to enhance students' PE and physical activity experiences [1]. However, pedagogical change takes time, support, guidance, and critical reflection [10, 14, 25]. While meaningful, purposeful, and quality PE can be a challenge—it is the intention for us all.

A. Appendices

Tip, Tip, Coach can be used in Physical Education, coaching or a classroom setting. Traditionally *Tip, Tip, Coach* involves partners alternating between two roles (coach and player) to be successful with the task or activity. While this traditional version may cater for the needs of the students in your class, the increasing diversity of students in the above settings demands adjustments to traditional CL structures. The following example is offered as an adjusted version of the *Tip, Tip*, Coach.

In this version, four people are in a group who alternate between the roles of players (2), one head coach and one assistant coach in order to improve and to provide support in a task or activity. The addition of the assistant coach not only emulates a sporting team environment but also provides support for a person in the coach role if they require it. Additionally having two players enables tasks or activities that require more than one player such as passing, catching and trapping the ball. Player A has a first attempt at an activity while the head coach and assistant coach are watching. If Player A is unsure or the coaches notice, they need help, the player can ask for a tip. That is, the head coach can give Player A one (coaching) tip (but not give them the answer or do it for them). The player tries again, and can ask for another tip. On the third attempt, the head coach can now start coaching the player to improve their performance. The head coach can consult with the assistant coach before giving a tip or while coaching. After improvement with the task, the coach and assistant coach swap roles and observe Player B. Students swap roles until all students have played every role. Players and coaches will need some guidance. We have found task sheets or task cards with pictures or photos of the task provide useful visual representations of the task. It is also advisable to provide an accurate demonstration of the task before starting the activity. If a student lacks confidence in the coaching role it is advisable that they begin as a player, followed by the assistant coach role before becoming the head coach. This strategy enables the student who lacks confidence to practice with the learning cues many times before having to communicate these to other players.

For example, in the soccer skill of passing two players will be required to pass the ball back and forth to each other. In the traditional version of the structure, there will be one player and one coach times two. In the adjusted version of the structure, there will be the head coach and the assistant coach with the two players. The learning cues for the task are on a task card in both written and pictorial form (photos or pictures). To cater for the diversity in a class, different learning cues may be required for some students. The table below provides some examples of these different learning cues. The example for a student who uses a wheelchair is just one option as in reality each student with a physical disability may require a different approach. Writing the traditional and plain English versions of the learning cues on the same task card provides options for the coaches.

Focusing on one player the coach and assistant coach observe and give feedback, if required as Player A has their first attempt. If this player is unsure or the head coach notices they need help, the player can ask for a tip. That is, the coach can give the player

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one tip (use your instep/inside of foot). The player tries again and can ask for another tip (plant non-kicking foot beside the ball). On the third attempt, the head coach can now start coaching the player to improve their passing. After the player passes, using at least three of the four cues, or after a pre-determined time students swap roles.

Traditional	In kid's speak	Student who uses a wheelchair
Use your instep/inside of foot	Put the foot you are not kicking with beside the ball	Place the ball on your lap (could be partner assisted)
Plant the non-kicking foot beside the ball	Use the inside of your foot	Using your hand or fist push the ball forward
Strike the middle of the ball	Kick the middle of the ball	Let your hand and arm follow through
Follow through	Let your leg swing forward	

Box 1. *Tip, Tip, Coach*.

In the *Pair-Check-Perform* CL structure, students are required to work with each other to perform and check information. There are four students in each group.

1. The instructor explains, demonstrates, and checks for understanding of a selected sports skill or teaching skill.

2. Instructor describes student performance outcomes and social, cognitive, and/or physical skills necessary to achieve the goal. We have found providing a task sheet with performance criteria and photos helps remind students what the performance outcomes are. As with Tip, Tip, Coach, some students may require adjusted outcomes to ensure the opportunity for improvement and success.

3. The instructor places students in CL groups, divided into two pairs.

4. In each group, one student practices the skill while the other student provides encouragement and helps the other student to perform the skill.

5. When one student has performed the skill, roles are reversed.

6. When students in each pair have performed, they join together with the other pair, in their group of four, and each student from each pair performs. If all students agree that the performance met the criteria for each student, the pairs can move onto the next skill. If there is disagreement, the students must continue working on the performance until they all agree on the form.

Task: For example, assessing the learning cues for the forearm pass in volleyball: Bend knees; Flat platform; Move to the ball; and Square to target.

Box 2. Pair check perform.

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Chapter 5

Nonlinear Pedagogy Game Instruction

Sanmuga Nathan

Additional information is available at the end of the chapter

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Abstract

Pedagogical game-based instructions such as Teaching Games for Understanding (TGfU) and constraint-led (CLT) theory from ecological perspective of motor learning seems to attract significant attentions among TGfU and motor learning researchers, educationist and physical education theory generator. Even though TGfU as game-based tactical approach through its pedagogical principles representation and exaggeration considered as a Nonlinear Pedagogy (NP) approach but in essence TGfU is a student-centered tactical approach of learning games. Whereas NP proposed by motor learning exponent's dwells around student centered skill learning approaches. However, by merging these two approaches of TGfU a tactical centered model and CLT a technical student-centered approach under the roof of holistic NP at early research stage in Malaysian PE game curriculum. Some preliminary findings indicated supremacy NP compared to Linear pedagogy (LP) in terms of tactical decision making when to apply of long and short shot, recovery to base, drop shot and smash in badminton doubles game play performance. As conclusion, implementing NP in Malaysian school would further strengthen tactical-technical/skill approach and suits teachers and weaker player as teachers can adjust the tasks accordingly to the situated learning environments.

Keywords: nonlinear pedagogy, linear pedagogy, teaching games for understanding (TGfU), constraint- led (CLT) theory, student centered-tactical learning, student-centered technical-skill learning

1. Introduction

A great deal has happened to sports-related games learning and teaching since the introduction and British conceptualization of Teaching Games for Understanding (TGfU) as a tactical model by Bunker and Thorpe in 1982 [1, 2]. Subsequently formation of Tactical Game Model (TGM) the American version of TGfU, Revised TGfU model, Game Sense the Australian version, Play

Practice and so on [3, 4]. On the other hand motor learning exponents as to defend the value of student-centered technical-skill development, they proposed the Nonlinear pedagogy (NP) [5, 6] using Constraints-Led Theory (CLT) as their main underpinning framework. Lately pedagogical model of TGfU and NP very much grounded globally [7, 8]. However, the linear pedagogy (LP) teachers' centered model or skill-led or technical-based model of teaching games that follows three stage of linear process of warming up activities, skill/technical activity/skill drills and a game-based activity and the end still dominating, fancied by certain sector of society [9].

What is great value if both students centered pedagogical approach can merge under one roof of holistic NP approach. In that able to develop and upgrade tactical-technical game play configuration to greater heights as to cope to present day pedagogical challenges. Perhaps self-determined learning heutagogy and technologies theories may challenge game based approach time to come [10].

This chapter will provide some insight and ideas to construct game based tactical-technical lesson. Therefore this chapter supports the holistic NP, as a student centered tactical-technical game learning without omitting teacher's role utilizing developing active skill drills for technical-skill developments. This present model of NP combines the original and revised Teaching Games TGfU model [1, 11], TGM [12], and CLT in designing sports-related game learning [13].

Designing pedagogical learning and teaching approach for sports-related games in education and coaching setting are complex and chaotic [14, 15]. As Mitchell and Oslin highlighted teaching Physical Education (PE) in public schools represents complex environment for both teachers and students. The challenge for teachers more complex in that they must give equally opportunity for varying ability students to play game while managing time [16]. It is complex too for students and they face challenges in game play, as game play interwoven with making appropriate tactical decision making abilities including temporal and space anticipation, efficient skill execution of motor skills and executing effective movement skills while opposing team players. Moreover, the situation would be more complex, when teachers coordinate and apply digital technologies such mobile apps (Ipad, Ipod), Dartfish software analysis as to analyze tactical-technique game play [17]. How to tackle the complexity of teaching games depends on teachers' past experience, situational learning-environment and their philosophy of belief.

The traditional philosophy believer inclined to linear pedagogy with skill progression and small sided game play akin teacher-centered intentional skill-technical approach, underpins behavioral theory of explicit learning [18]. In contrary, skill drills activities deprive students from game engagement and motivation [19]. However, the present chapter supports skill drills elements in NP if it's being carried out in a small portion in game learning without depriving game play approach. This is due to skill drills still has it value in skill development if planned systematically through introducing active skill drills and it would benefit the slow learners and late bloomers. Whereas NP exponents philosophy believes on student-centered implicit learning with nonintentional automatic acquisition of knowledge and skill learning underpins constructivism and cognitive theory [18].

Nevertheless what teachers philosophical belief, sports related game configuration very much inter-related or interwoven between tactical-technical components of game play without omitting fitness component. The technical components relates to skill-technical motor learning and tactical decision making refers to tactical cognition process which both essential for game play.

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As such applying dual process of learning viz. implicit, explicit or combination implicit-explicit learning crucial for tactical and technical development. When to apply explicit, implicit or implicit-explicit learning and teaching depends on situational learning environments, subject-matter, learning objectives, varying students abilities and game situation [11, 18]. In order plan a game lesson in PE classes, Lambert and Killingley suggested the STEP method manipulation (space, task, equipment, people/players) the best way to differentiate and adjusting the game play task in accordance too tactical-technique-skill for varying abilities students [20].

2. Background

Human learning process at times can be non-linear and linear, what matters effective creative and critical learning process takes place be it technical or tactical components of a game play. Motor learning exponents sees that learning in games as a non-linear process and skill-led technical execution is the center game learning. Motor learning experts proposed NP the learner-entered approach for game learning through skill acquisition and development as the central tenants of game learning [21]. They suggested that teachers should provide game lesson with different game tasks and degree of difficulty in order to adapt during game play environment. As such students learns game configuration through exploration, practice play that both movement co-ordination solutions and decision making [21, 22].The concept of NP or nonlinearlity focuses on technique-skill development learning approach coined by the motor learning exponents, roots from interacting elements of task, environment and individual players or learners constraints. All these constraints such as body anthropometric nature such as, height, weight, playing surrounding, and opposition varies especially open skilled games.

Therefore game play learning and performance takes place, shaped by interacting task, environment and individual interaction. Hence teaching and developing skill-technique in isolated approach may collapse when task constraints, when players oppose by opposition players or the individual emotion may be effected [23]. Nonlinear pedagogy approach encourages exploratory learning in physical education applying pedagogical principles that focus on manipulating task constraints and creating representative learning designs to enhance skill-learning [5, 6]. Even though game learning appears to be nonlinear, complex's technical skill should be taught by game like active skill drills methods especially for less ability students and students at the beginning stage of learning game, these students needs guidance from teacher. Repetition and active skill drills method through LP are the best methods for skill development in this kind of environments. Some findings indicating *s*pecific football drills that rooted from LP improve the development of technical/tactical and physical variables in players through small-sided and conditioned games [24, 25].

Teachers even omit tactical considerations from practice because they focus so intently on teaching technical skills. Teaching tactics is much harder and takes much more effort than teaching techniques. Tactical skills can best be defined as the decisions and actions of players in the contest to gain an advantage over the opposing team or players. Game play tactical decision making should be taught first before technical skill development otherwise the game will collapsed [26, 27]. Tactical decision making very much depends on the players cognitive processing capabilities especially in anticipating space and temporal perception [28]. Teachers

can teach players to learn tactical elements in game play through three critical aspects known as tactical triangle; i. reading the game play or situation, ii. acquiring the knowledge needed to make an appropriate tactical decision and iii. applying decision-making skills to the problem in game situations [29]. Generally tactics are defined as the decisions and actions of players in the contest to gain an advantage over the opposing team or players [29, 30]. In order to comprehend tactical learning in decision making for it is important for players to recognize how to use specific tactics in game play [26].The successful application of tactics involves performing the right skill at the right time on the field to achieve the general strategic objectives of the game that were decided upon before the game started [30, 31].

Researchers argues that tactics operate under strong time constraints because they must be decided upon and then implemented under pressure during game The specificity of tactics means that tactical learning cannot be easily separated from technical-skill learning, since a tactic is only successful if performed skillfully. However, as Anderson and Hopper suggested that tactical components should be introduced earlier, prior to skill development, otherwise if the student game practice without NP will sink [23, 24]. Research findings indicated players learn tactics via LP approach better, at times teacher should play an important role in enhance the game performance, by stopping the game at the teachable moment and instructing on how the students or will improve their decision making and technical skills [30].

The merging these two approaches viz. TGfU a tactical centered and CLT technical centered approach under the roof of holistic NP would be another alternative for game learning. Changing game play environments warranted players to learn game tactics and technical skill through active skill drills framing different game situations. Single method of approach may not be that suitable in every game learning situation. Modification and eclectic nature of NP very much sought and needed constantly in the changing game play environments for players to solve game problem [21, 31].

Prior to the emergence CLT, those undertook research via TGfU globally and in Malaysia evolved around comparing TGfU model versus skill-based model or technical model in terms of skill execution, tactical decision making and knowledge components across various types of small sided game play. Based on the numerous findings indicated that TGfU model seems to be a better learning model for game learning compared to skill-led teaching approach or the technical model [32–34]. PE game curriculum designer apart from addressing versus paradigm issue, another issue of TGfU to be resolve. TGfU apparently need support of motor learning theories such as CLT especially in improving game configuration in terms of perfection of skill execution, fitness components and adapting different game situations, different constraints and environments and pedagogical constitutes [35]. A part from game play configuration, TGfU model too in needs of additional assessment tools apart from Game Observation Instruments (GPAI), cleverly developed by Mitchell, Oslin & Griffin [36, 37].

3. Underpinning nonlinear theoretical framework

The development of nonlinear pedagogy in this chapter underpins the following models, and theory. Firstly, the original TGfU model [1] as reflected in **Figure 1** (as permission granted

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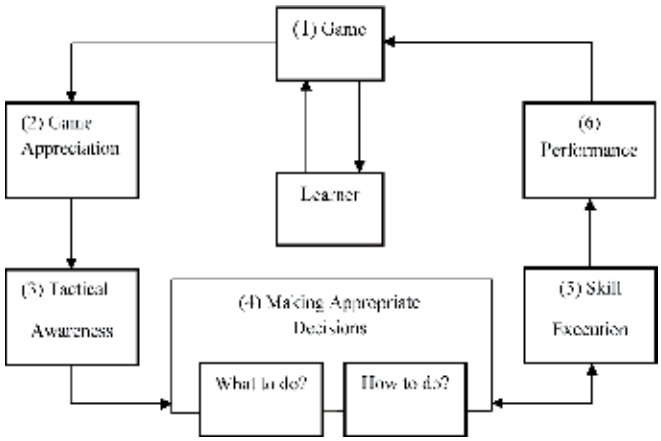

Figure 1. Original TGfU model.

by Dr. Rod Thorpe), TGfU revised model as **Figure 2**, (permission granted by Prof. David Kirk [11] and were further strengthen using Tactical Game Model (TGM) with permission grated by Mitchell, Griffin & Oslin [12] roots from constructivism and cognitive theories as in **Table 1** [23, 24]. The TGM dwells around attacking strategy, defending strategy and restarting framework as intergal part of tactical strategy of game play. In addition, within the TGM framework autentic game play observation instrument or Game Performance Assesment Instrument (GPAI) was introduced to assess tactical decision making, skill acquistion players with and without ball within small sided game play situations [12, 36].

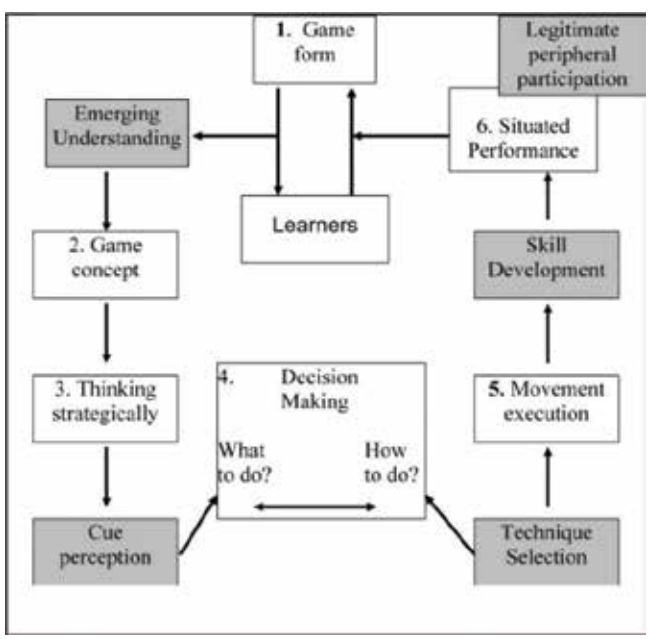

Figure 2. Revised TGfU model.

Tactical and problem	Skill level 1	Level 2	Level 3
	Offense or scoring	strategy	
Setting up attack- creating space on the opponent's side of the net	Overhead clear (forehand, backhand)	high service	
		underarm clear	
	Overhead drop shot (forehand, backhand)		
Winning the point	Smash		Attacking drop shot
	Attacking short serve		
Attacking as a pair			Front, back offense.
	Preventing scoring	(defense)	
Defending space on your own side of the net	Recovery to center court-footwork	Low service	
Defending against an attack		Returning the smash	Returning the drop shot
Defending as a pair			Side-to-side defense
			communication

Table 1. Attacking strategy, defending strategy TGM framework.

Skill acquisition stems robustly among motor learning theory generator for long time and skill execution crucial for any game play. These motor learning proponents values the importance of CLT in shaping and chaining players with game skills, movement skills and game play knowledge. As the motor learning proponents argued that CLT framework can help physical educators to build their teaching and learning instruction using different task, level of performer and environmental constraints to explain on how learner acquire movement skills and decision making behaviors [21, 38]. The constraints-led approach was developed based on ecological psychology and dynamical system [22, 38]. The constraints–led theory as **Figure 3**, is divide into three categories: performer, environments and task as these factors interacting that shape students behaviors as created by Newell to as to provide a framework for understanding how skills and movement patterns emerge during task performance [22, 38].

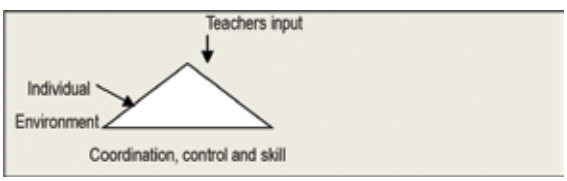

Figure 3. Constraints-led theory.

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4. NP tactical-technical development Malaysian context

Malaysian PE curriculum lately moved towards standard based KSSR, KSSM curriculum advocating TGfU as the main sport-related game based instruction [39]. It's a forward step by the Malaysian Ministry of Education cleverly introducing TGfU replacing skill based approach or the LP, however one has to be caution as the original TGfU model itself still need to be strengthen in order to be a holistic game-based model. One shouldn't completely ignore LP still has it strength in skill development through teacher-centered explicit learning [40, 41]. Perhaps, Malaysian curriculum designer should also consider the emergence of CLT to be merged with TGfU family models. Furthermore one should not omit the revise model of TGfU developed by Kirk and MacPhail demands the importance situational learning perspective cue-perception and skill development components in line with situational learning theory [11]. Based on this premise and constraints the development of NP and preliminary research badminton among Malaysian secondary school students was possible.

The NP based on the following elements adopted from variation of TGfU family models in term of a tactical approach on 'what to do' and 'how to do' – game problem solving based on clues and guided discovery approach through guided questioning and skill developments via skill drills techniques. While from CLT and in line ETA lesson plans by that includes tactical problem, lesion focus, cognitive and psychomotor objectives, modified game and conditions to execute game tactical problems, questions for solving tactical problem [36, 38].

Activities in badminton game play will be organize based on mini game situations and by adjusting and constraints in the playing area, 1 vs. 1, 2 vs. 2, or 1 vs. 2 as well as using active and passive drills for skill development in line with situational learning in badminton game play situations [11, 42].

The task or lesson activities developed with different constraints, based on specific rules, and environment. This is done by modifying equipment available to the learners, playing areas size, and setting up goals and objectives in each lesson to upgrade players' performance as suggested by constraints-led theory. In order to expose students with constraints and difficulties of applying tactics of creating space for attack, closing space for defense strategy the researchers and teachers will create a long and narrow adapted court compared to a wide and shallow court. The perceived information from the task constraints (long narrow courts), this will enable the players to make tactical decision whether to execute, long and short shot. Adjusting and manipulating the area of badminton to wide and shallow courts as a task constraints could lead to the badminton players/students challenge the in solving of badminton tactical decision making and skill executing [22].

The NP badminton framework reflected in **Table 2** depicts the learning framework for five units for five weeks. In detail the nonlinear badminton developed evolving around the following elements of: solving tactical problem, executing footwork movements and badminton skills scoring (offense) and preventing scoring strategy in badminton game play situations [34]. Various game play situations were created based tasks, constraints and the players as performer.

Unit	Tactical Problems	Skill focus	Learning Objectives Dimensions	Guide discovery and Cues, Game play Observation Instrument
1	Restarting (Service) Scoring strategy	Forehand and backhand service	**Psychomotor**: Able to execute forehand, backhand service. **Cognitive**: Able to apply where to send high, low forehand, backhand back service during offensive strategy in game. **Affective**: Able to take responsibility to organize game.	What sort of forehand stroke do use you when clearing the shuttle while attacking? Which part of the court do send to the opponents to win a point? **Cues:** Forehand grip. Thumb, first finger form "V" Backhand service Use a short, relaxed thumb grip.
2	Scoring and defending strategy	Footwork forehand clear and underhand clear	**Psychomotor**: Able to execute movement skills of forehand, overhead clear and underhand stroke of clear, technically sound. **Cognitive**: Able to apply when, where to create space, close space during game play. **Social**: Able to take responsibility to organize game	Why footwork important in badminton game play? How to execute footwork? **Cues:** Underhand clear: Step forward with opposite foot, pull racquet back. Overhead clear: move directly under shuttle, weight on back foot.
3	Scoring and defending strategy	Footwork backhand clear	**Psychomotor**: Able to execute movement skills to the base, backhand clear technically sound in game. **Cognitive**: Able to apply when, where to find space in game play. **Affective**: Able to take responsibility to organize game	How do you score a point in badminton? How do you stop your opponent from scoring? How can you push your opponent back?
4	Scoring and defending strategy	Forehand drop short	**Psychomotor**: Able to execute forehand drop short, technically sound in game play. **Cognitive**: Able to apply drop shot in open space, close space during game play. **Affective**: Able to take responsibility to organize game	Q: How do you score a point in badminton? How do you stop your opponent from scoring? Q: How can you push your opponent back? **Cues**: Adopt the forehand grip. Slice or tap the shuttle as you hit it
5.	Scoring strategy and defending strategy	Smash	**Psychomotor**: Able to execute smash. **Cognitive**: Able apply smash in open space during game. **Affective**: Able to take	What deadly skill do you use? Q: How do you execute smash skill? **Cues**: When ontact with the shuttle you need to use your forearm, wrist to snap down to get the power of smash

Table 2. Badminton game play framework for nonlinear pedagogy.

While a daily lesson plan as illustrated in appendix indicating a sample badminton lesson based on the Malaysian Standard base Curriculum for form one secondary school students (13 year-old). This daily lesson plan was formatted in accordance with Malaysian standard based curriculum of KSSM [39]. Daily topics based on tactical topics of game play. Tactical topics in regard to scoring strategy, tactical problem solving involves creating space on opponents side of net, winning the point, attacking as a pair utilizing skills such as overhead clear by using forehand and backhand skills and overhead clear shots using forehand and backhand skills or underarm clear using forehand and backhand skills, low service, high service,

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lob, drop shot, smash as well as returning to base. While preventing scoring (defense) tactics involved defending space on own side of the net, defending against an attack, defending as pair and skills involve forehand, backhand employing underhand and overhead strokes of clear and footwork movement, returning to the base.

The daily lesson plan document as in appendix consists of the following elements: (i). Demography of a lesson plan, (ii) Phase 1- General discovery of tactics and skills of the day, through guided discussion. Followed game based warming-up, (iii) Phase 2 -Planning and application students centered tactics and skills learning using small sided game play situations Game play task with various constraints provided by teacher. Teacher employed guide discovery learning approach in discovering tactics and skill cues, Phase 4- Planning and application of tactics and skills tasks with higher constraints in small sided game situations via guide discovery approach and formal game play observation assessment. Finally Phase 5- Limbering down activities, reflection discussion.

Authentic and formative assessment as part of learning in the standard base curriculum and in the TGM framework [12, 39]. Therefore this chapter advocates a modified net and wall Game Observation Instruments with permission from Stephen Mitchell measuring psychomotor and cognitive outcome as in **Figure 4**, and affective domain in term of game play enjoyment reflected in **Figure 5**. As for cognitive domain two new elements the spatial and temporal

Game Performance Assessment Instrument Net and Wall Games (Badminton)

Class: _____ **Evaluated:** _____ **Team:**_____ **Observation date:**_____

Components and Criteria

i.Skill execution perform forehand and backhand, drop shot and smash into the opponents court
ii.Decision making: Students make appropriate choices of when to place a long or short shot/drop
iii.Spatial and Temporal anticipation as part cognitive decision making

Recording procedures

- Use tally to mark the observed category E, A: 1 mark and IE, IA: 0 mark
- Mark each player's response during the game.
- **Decision making:** If the players you are evaluating strikes the shuttle long or short, be sure to mark whether the players made an appropriate (A) and inappropriate (IA) decision making
- **Skill Execution:** whether able to executes kills of underground forehand and backhand, drop and smash: Efficiently (E) and inefficiently (IE)
- **Spatial and Temporal anticipation:** Players able to anticipate Spatial and Temporal anticipation between skill attempt (A) and unable return to a recovery position (IA)

Name	Skill execution Forehand Backhand				Decision Making long or shot		Spatial and Temporal anticipation		Drop shot		Smash	
	E	IE	E	IE	E	IE	A	IA	A	IA	E	IE

Adapted with permission Mitchell et al. (2013).

Figure 4. Adapted game observation instrument for net/wall game.

Affective Domain Assessment Net and Wall Games (Badminton)

Name of players: _____

Class: _____ **Evaluated name:** _____ **Team:**_____ **Observation date:**_____

The purpose of this assessment is to keep track of behaviors displayed by players learning tasks and game play. Whether or not you assign a point value to the categories is your decision. Keep in mind that games are self-officiated, so there will be opportunities to observe players taking responsibility for their behavior

Points: Positive behavior identified 5 4 3 2 1 negative behavior identified

Acceptable behaviors		Unacceptable behaviors
Supports and encourages teammates		Lacks any show of support or encouragement for te
Follows all calls without argument		Argues or breaks rules regularly
Other		Other
Total		Total

Ratio: Acceptable, Unacceptable, (Adapted with permission Mitchell et al., 2013)

Figure 5. Adapted game observation instrument for behavior.

anticipation were added to the original Game Observation Instrument for badminton game play as in **Figure 4**. These two instruments would beneficial to asses students authentic game play performance through video analysis.

5. NP preliminary study in badminton among Malaysian students

As to confirm NP model as a valid and reliable pedagogical model for sport-related game, the writer of this chapter as the principle researcher conducted a preliminary study on badminton among Malaysian secondary school students comparing NP with LP model. The study utilized experimental design n = 56 students aged 13 years old selected randomly and assigned equally into groups of NP model, n = 28 and LP model, n = 28. Statistics tests of Univariate ANOVA and ANCOVA were used to analyze the collected data [43].

Prior to the NP intervention, the content of NP lesson was piloted for content validity in terms of: (i) demography of the lesson plan, (ii) phase 1 (discovery of tactics in form of warming up activities), (iii) planning and application of tactics and followed skills execution in small sided game play situations with plank task and various difficulties and constraints for the performer (students), using guide discovery approach, (iv) planning and application of skill drills and again higher degree of skills intervention during small sided game play situations with higher task and constraints using guide discovery approach. (v) planning and application of tactics and skills with higher constraints using guide discovery approach, (vi) finally limbering down, and reflection activities. These main framework attributes of NP lesson were viewed by four reviewer experts (three in experts in the field of PE, motor learning, coaching, sociology and sports education and one in language expert). They were asked to rank the appropriate score from scale (1: totally disagree, 2: disagree, 3: Unsure, 4: agree, and 5: highly agreeable). As for all the attributes of NP content validity, the percentage of

score agreement given by the panels were between 90 and 95%. The preliminary findings indicated there was no significant difference between NP (4.21 ± 3.40) and LP (3.00 ± 3.89) in term of forehand underhand shot in doubles game play performance after intervention $F(1.54) = 1.542$, $p = .220$, p > 0.05 l. Similar results recorded for forehand overhead shot indicated no significant difference between these two models NP and LP, $F(1.54) = 2.209$, $p = .143$, $p > 0.05$. As for decision making in term when to apply of long and short shot in doubles game play *ANCOVA* indicated significant improve performance via NP compare LP, $F(1.54) = 16.454$, $p = .00$, $p < 0.05$. Whereas for players recovery to base in doubles game play again NP recorded significant improvement (2.50 ± .923) compared to LP model (.93 ± 1.35) after intervention with $F(1.54) = 25.624$, $p = .001$, $p < 0.05$. Similar results indicated for drop shot in doubles game play NP pedagogical model effectively recorded (2.78 ± .630) compared to LP (.86 ± .1.00), $F(1.54) = 73.72$ $p = .001$, $p < 0.05$, $\eta^2 = .577$. As for smash, too indicated significant improvement via NP (2.43 ± .790) compared LP (1.21 ± .686) doubles game play performance, $F(1.54) = 37.69$, $p = .001$, $p < 0.05$, $\eta^2 = .830$. The preliminary findings supports NP would further strengthen TGfU and suits teachers and weaker player as teachers can adjust the tasks accordingly to the situated learning environments.

6. Conclusion

As conclusion, implementing NP using student centered tactical-technical skill approach would further strengthen TGfU and CLT. The holistic NP probably can suits teachers with tactical-technical varying abilities students. What is so special with NP, in that teacher able to negotiate the weaker students, as teachers can adjust the tasks tactical-technique/skills accordingly to the situated learning environments without forgetting students social–emotional level (44). It proofs that human learning nonlinear, as findings among Malaysian school students supports the NP approach able to upgrade tactical-technical badminton game play outcome performance compared to LP.. The components of TGfU model such as small sided game play, tactical-skill led and skills approach. Furthermore, incorporating, planning and adjusting constraints' of activities with performer/students using CLT framework played the vital role too upgrading game play performances in terms of tactical decision making, skill execution drop and smash shot among Malaysian students in badminton game play. However, the NP needs further investigation with the emergence heutagogy and technologies theories.

Acknowledgements

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Conflict of interest

No conflict of Interest

A. Appendix

A.1. A unit of Nonlinear lesson plan

Class: Form one Time: 8.00–9.00 Topic: Badminton (Forehand stroke of clear)

Learning standard:

1.6.1 Able to execute movement skills to base, as well as able to executive skills of forehand overhead-underhand stroke of clear in badminton. 2.6.1 Able to describe various movement skill to base, skills of underhand and overhead stroke of clear.2.6.3 Able to justify when and where to use underhand and overhead stroke of clear. When and where to apply open space and close space tactics while attacking and defending strategy during doubles game play situations. 5.1.1 Readiness with proper attire, equipements.5.2.1 Able to demonstrate happiness while engaging in the activities

Learning Objectives

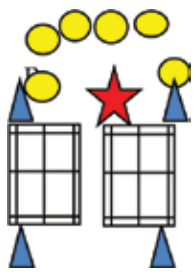
Psychomotor: Students able to execute badminton movement skills to the base, forehand overhead clear as well as underhand stroke of clear, technically sound in and singles doubles mini game play situations

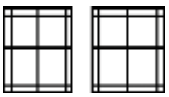
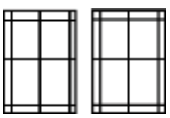
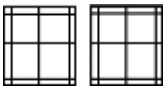
Cognitive: Students able to discuss and apply when and where to create space in attacking strategy and close space during defending strategy in doubles mini game play situations

Affective: Students able to take responsibility to organize, administer positive and encouraging doubles mini game play situations. **Elements across curriculum(EMK):** Creative and Critical in examining tactics and skills in badminton

Teaching Aids: Racket, shuttle, nets, skittles, poster, video.

Evaluation of T &L: Skills execution and tactical decision making (Game Play Observation Instrument). **Reflection**: By teacher and students

Learning development	Activities of T& L (Instructional activities)	Organization	Discovery (Discussion and Questions)
Phase 1. General discussion discovery forehand underhand, overhead clear strokes. Dynamic warm-up, stretching with footwork movement skills (10 min)	Warm-up: Individually practicing footwork from the base to the base of court. Then individual practicing under hand and overhead strokes and move around the badminton court grid.	Half court singles  P	What sort of forehand stroke or skills do use you when clearing the shuttle while attacking? Which part of the court do send to the opponents to win a point? How to move back to the base or recovery after attempting opponent shot?

Phase 2 Planning and applications of tactics and skills (15 min)	Mini game situation 1 (Creating space): Push and attacking opponent at open space at the back. Work across the grid in half court singles using underhand clear	Half court singles 1 vs. 1 	How do you score a point in badminton?. How do you stop your opponent from scoring? How can you push your opponent back?
Phase 3 Planning and applications of tactics and forehand skills (15 min)	Mini game situation 2 (Creating space): Use forehand underhand and overhead strokes to move your opponent forward movement individually. Work across the grid in half court singles using overhead clear	Half court singles 1 vs. 1 	Q:How do execute forehand underhand and overhead clear? A: Underhand clear, with step forward with opposite foot, pull racquet back and high, strong swing forward, A: As for Overhead clear, move directly under shuttle, weight on back foot, racquet moves to overhead hitting position, racquet strikes shuttle high, chest turns to target, player steps forward with hitting foot
Phase 4 Planning and applications of tactics and skills (15 min)	Skill drills 4X forehand drills (toss and clear underhand and overhead forehand in ini game situation 3 Creating space)-pushing opponent to back and front in a rally using forehand and backhand skills	x ……..x x……x x……x Full doubles court 2 vs.2 	When do you apply forehand and backhand skills in game play Why do you need to create space? Game play and affective observations
Phase 5 Reflection (5 min)	Closure Reflection and cooling down	Half court singles 	Cooling down Summary and reflective discussion

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There are several teaching sports approaches for school-age sports practitioners. However, relatively few models have a substantial theoretical and scientific foundation. In this sense, the present work aims to serve as an introduction on which to support the didactical process of a Non-Linear Pedagogy of games teaching, as described in the first chapter. A comparison between the traditional approach of sports teaching and the Teaching Games for Understanding model within the Slovak Republic context is exposed. Subsequently, experience in the Sport Education model in Finland is presented. Then, research regarding teachers' experiences with the Cooperative Learning model at different ethnic, cultural, and socioeconomic backgrounds is developed. Finally, an example of the Non-Linear Pedagogy program is used in Malaysia.

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