We are IntechOpen, the world’s leading publisher of Open Access books
Built by scientists, for scientists

4,100
Open access books available

116,000
International authors and editors

120M
Downloads

154
Countries delivered to

TOP 1%
Our authors are among the
most cited scientists

12.2%
Contributors from top 500 universities

WEB OF SCIENCE™
Selection of our books indexed in the Book Citation Index
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com
Tactical Preparation in Sport Games and Motivational Teaching of Sport Games Tactics in Physical Education Lessons and Training Units

Pavol Peráček and Janka Peráčková

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, alterativeness 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 interoperability 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 advice, 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 level 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 act-
ing 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 edu-
cational 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 ≤ 0.01) differences with a large effect size (η² ≥ 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 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 verify-
ing these approaches, which would not only clarify their practical use in terms of the char-
acter 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 activi-
ties, 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.

Acknowledgements

This work was supported by the grant VEGA 1/0726/17, the project entitled Sports motiva-
tional profile for different groups of population and the influence of various sport activity to
improve the subjective dimension of quality of life.

Conflicts of interest

There were no conflicts of interest.

Author details

Pavol Peráček¹ and Janka Peráčková²*

*Address all correspondence to: janka.perackova@uniba.sk

¹ Department of Sport Games, Faculty of Physical Education and Sport, Comenius
University in Bratislava, Slovak Republic

² Department of Sport Educology and Sport Humanities, Faculty of Physical Education and
Sport, Comenius University in Bratislava, Slovak Republic

References

[1] Schnabel G, Harre HD, Borde A. Trainingslehre – Trainingswissenscha: Leistung-
996310


1988. p. 191


[12] Liu YK, Cheung CY. Teachers’ responses on the teaching games for understanding 10 years in Hong Kong. Paper presented at the third International TGfU conference; December 2005; Hong Kong, China: 2005


[36] Butler JI. Curriculum constructions of ability: Enhancing learning through teaching games for Understanding (TGfU) as a curriculum model. Sport, Education and Society. 2006;11(3):243-258. DOI: 10.1080/13573320600813408


[41] Couzner BN. The transfer of learning between tennis and table tennis skills. The Australian Journal of Physical Education. 1974;66:5-8


[61] Peráčková J, Luptáková M. Zmeny proxemiky symetrické komunikácie stredoškoláčok po aplikácii kooperatívneho učenia. [Changes in proxemics of symmetric communication in female secondary school pupils after applying cooperative learning.]. Telesná výchova & šport. [Physical Education & Sport]. 2012;22(2):2-6


[76] Peráčková J. Vyučovanie telesnej a športovej výchovy so zameraním na získavanie detí a mládeže k pohybovým a športovým aktivitám. [Teaching Physical Education lessons with a focus on bringing children and youth to physical and sporting activities.]. In: Antala B et al., editors. Telesná a športová výchova a súčasná škola. [Physical and Sport Education and Contemporary School]. Bratislava: Národné športové centrum v spolupráci s Fakultou telesnej výchovy a športu University Komenského v Bratislave; 2014. pp. 77-103. ISBN 978-80-971466-1-0


[84] Runco M, Acar AS, Cayirdag N. A closer look at the creativity gap and why students are less creative at school than outside of school. Thinking Skills and Creativity. 2017;24(3):242-249


