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Teaching tennis by means of a constructivist approach

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ABSTRACT

Analysis of plantar pressures during sport movement performance can provide significant information to athletes and coaches regarding sport performance and plantar loads. Tennis is a sport that is played in different surfaces. Therefore, the terrain is a critical factor that determines both the bounce of the ball, and how the player moves on the court. The purpose of this study was to examine the plantar pressures in two different surfaces of tennis courts (greenset - synthetic grass) when performing a sequence of two basic tennis movements, service and return in combination with forehand and backhand strokes.

INTRODUCTION

Tennis teaching has traditionally centred around mastering technique by means of the conductivity models with which the player becomes a passive subject who mechanically registers the information he is given (Contreras, 1998). Thus, learning is based on the analytic repetition of strokes which will be later practised in a simulated competition context (Sánchez, 2003). Following the proposal set by Sánchez-Bañuelos (1986), such skills will initially break down into simple parts that learners will, little by little, incorporate until they can perform the complete technical movement. Finally, these skills will be integrated into real game situations to start tactical learning.

A clear example of this model can be found in the classic system of tennis training based on baskets or carts: the coach throws balls asking the player to repeat one or several technical movements while the latter mechanically reproduces the technical movement indicated.

Over the years, these technical models have been criticized because they leave in the background some key aspects like tactics, the creativity and autonomy of the player, the ability to solve problems and because they can be monotonous and boring (Devís & Sánchez, 1996). As a consequence, some alternatives have cropped up based on the "Teaching for Understanding Sport Games" (Bunker & Thorpe, 1982), whose characteristic is driving the teaching of tactics to technique (that is, from "knowing what to do", to "knowing how to do it") fostering understanding the game principles on the mechanical technical execution. This way, the player will get a contextual learning of the technical skills (Arnold, 1991; Famose, 1992), and will associate their executions to the corresponding decision making depending on the game situation (what technical movement to make, where and how to execute it). In order to do so, the coach will present global game situations (changing scoring systems, space, time, and number of players, etc.) offering a practice context for the player to explore solutions freely. The coach acts as a mediator of this learning, guiding the player to be successful in his task. This kind of practice has a certain degree of uncertainty and variability that will force the learner to adapt his behaviour at all times, favouring the transference to competition.

For example, if the target is to make a beginner player practise the forehand stroke, it is possible to present a global 1x1 exercise with reduced space in which the player can only hit forehand strokes.

Similarly, this could be criticised because it leaves the correct technical execution in the background, which is key in tennis. Still, far from ignoring its importance, the work of technical skills would be included in order to perfect them and be more successful in the playing environment (Griffin, Mitchell & Oslin, 1997), or, when the demands of the task are so high that they prevent the player from succeeding.

For instance, after the precious forehand exercise, it would be wise to reflect with the player on those aspects they would perfect, so as to improve their strokes. Then, these aspects should be worked upon in a more specific way, in order to finally present a global situation to transfer such learning.

ADVANTAGES OF TEACHING BY MEANS OF A CONSTRUCTIVIST MODEL

It is important to mention the potential advantages of a comprehensive and constructivist model for the development of athletes who are better prepared and in a better condition to face top level competition. This assumption is based on research on the characteristics that differentiate top level from lower level athletes (Baker, Côté & Abernethy, 2003; Castejón, 2003; Raab, Masters & Maxwell, 2005). Among other aspects, we find that expert and top level athletes are characterized by:
- A greater specific knowledge of the sport.
- A better capacity for decision making in the real game context (i.e. to decide and act in a shorter time and with a greater success rate).
- A greater perceptive skill and pattern recognition, which allows for a greater anticipation capability as regards their opponents.
- A greater adaptation capacity to the different game situations.
- A greater creativity and a greater number of technical-tactcal resources.
- A greater technical command and a greater variability of movement.

TEACHING PRINCIPLES TO DESIGN TENNIS TASKS

One of the greatest difficulties and demands of the comprehensive model is to plan and to structure the tasks during the training sessions correctly. For so doing, not only is it necessary to have a great knowledge of your own sport,

(rules, technical-tactical aspects, physical demands of the competition, performance indicators, etc.) but also to have the methodological resources to maximize each task, facilitating the teaching-learning process.

According to Cárdenas (2005) and Contreras (1998), we can differentiate 5 great sport teaching principles in which task design is particularly important.

Ranking tasks in increasing order of difficulty

It is logical to think that content organization, growing from simple to complex will optimize learning (Álvarez & del Río, 1999; Famose, 1992). As Ruíz Pérez (1995, p.135), stated, we can consider that "the player is an active problem solver", thus, the task must be a challenge that can be overcome, that is, its difficulty must be a little harder than what the learner can already do, favouring autonomy in problem solving (Castejón & López Ros, 1997). If we consider the famous Csikszentmihalyi´s (1990) "flow theory", the challenge of the exercise will be directly linked to the player´s skills (Figure 1). So, the situations we present must be complex enough to be an attractive challenge that raises the players´ maximum interest and motivation, making sure they are involved in pursuing the objective. On the contrary, it is recommended to avoid extremely easy or monotonous tasks that may cause boredom or lack of enthusiasm, and also those that are too complicated, and create anxiety and frustration.

Figure 1. Flow channel between the degree of challenge of the task and the learner´s level of skills (Csikszentmihalyi, 1990).

In an attempt to classify the tasks according to the degree of difficulty, three main dimensions were set, laying emphasis on the complexity of the decision making process the player is exposed to (Table 1). In this sense, initial stages must present situations with less stimuli, requiring less accuracy, or less actions to coordinate, in order to evolve, little by little, to more complex situations. Likewise, Durand (1988) talks about the need to reduce the number of targets in a task, as well as the amount of information or feedback provided to the learner during the initial stages, in order to avoid saturation.

At initial stages, tasks should be driven to meeting simple and clear targets that the player quickly understands (i.e. passing the ball to the opposite side clearing the net, deep balls to keep the opponent near the baseline, covering the centre of the court...) Likewise, we must provide a practice context that allows them a high percentage of success, for example, reducing the speed using low pressure balls, limiting the space favouring the return of the ball, or setting big targets to facilitate hitting the right place.
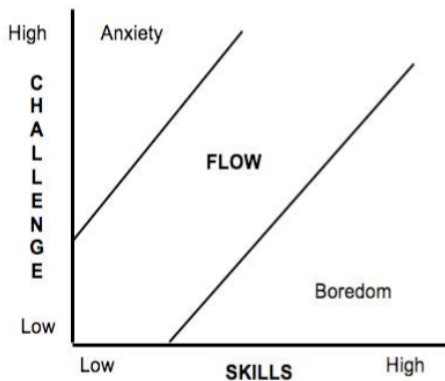

Figure 1. Flow channel between the degree of challenge of the task and the learner´s level of skills (Csikszentmihalyi, 1990).

Basic and specific motor training

The motor component is a fundamental pillar for the correct sport practice (Oña, Martínez, Moreno & Ruiz, 1999). So, the predominant motor skills in tennis are, hitting, moving, turning and jumping. However, it is important to highlight the importance of coordinated and perceptive-motor work for the right adaptation to the variable condition of competition in racket sports.

Teaching significantly

It is important for the player to understand and to make sense of what they are learning (López Ros, 2010; Castejón and López Ros, 2002). This way, the player understands the essence of the game, (internal logic) stimulating decision making through the search of personal responses to the repetition of motor stereotypes, thus, developing creativity (Cárdenas, 2005). In short, they can start responding: "Why am I doing this? What is it for?" Therefore, it is necessary for the contents and their sequences to be coherent and organized in a logical order, to be contextualized and to be functional (López Ros, 2010). In this sense, training tasks must include the greatest possible number of contents, assuring a cognitive involvement of the player during practice, allowing free exploration and personal resolution of the game situations that are created. On the contrary, to present analytic repetition tasks without considering a real game context, and without giving the player a cognitive implication, would not result in significant learning (Iglesias, Cárdenas & Alarcón, 2007).

For example, if the target is to work on stroke consistency, a 1x1 or 2x2 could be used counting the points once the players have interchanged "x" number of strokes. Another more complex situation to work on the direction or change of rhythm is, in a 2x2 situation, not to hit more than 2 strokes in a row in the same direction (down- the-line or cross-court).

Complexity of skill decision making					
No. of correct decisions	None	Little	Some	Various	Many
No. of alternatives to the decision	None	Little	Some	Various	Many
Speed of decision	Not relevant	Very slow	Slow	Fast	Very fast
Sequence of decisions	One decision	Two	Three	Four	Five
Perceptive characteristics of the skill					
No. of necessary stimuli	None	Little	Some	Various	Many
No. of present stimuli	None	Little	Some	Various	Many
Duration of the stimuli	More than 20"	More than 10"	More than 5"	More than 2"	Less than 2"
Intensity of the stimuli	Very intense	Intense	Moderate	Low	Very low
Clarity of the correct stimuli	Very evident	Evident	Moderate	Subtle difference	Very subtle difference
Motor characteristics of the skill					
No. of muscular actions	1-2	3-4	5-6	7-8	9 or more
No. of coordinated actions	Minimal	Very little	Some	Various	Many
Precision and stability required	None	Minimal	Little	Considerable	Great
Fine motor skills required	None	Minimal	Little	Considerable	Great
Degree of difficulty	Very low	Low	Medium	High	Very high

Transference to real game play

In connection with the above, it is key for practice to reproduce competition through global situations (Bunker & Thorpe, 1982; Devís, 1992). For so doing, the coach must present tasks with opposition and/ or cooperation, including tactical and technical elements paying attention to the physical demands of the competition. This way, the player will be executing and making decisions in a context that will be similar to competition, allowing for a better transference of learning.

For example, if the objective is to improve power and direction in service, we can present a 1x1 or 2x2 situation in which the player who is serving has three service opportunities, so they

can risk more and make more serves. Besides, each direct? service point will score double.

Adapting to the characteristics, motivations and interests of the pupils

Probably, one of the most important aspects when designing a session is to create attractive tasks that motivate players. For so doing, the coach must carefully select the contents and targets of each task, trying to meet the interests of the players, and to cover the targets proposed, being coherent with the level, characteristics and maturity stage of the players (Castejón & López Ros, 1997). A good tool for this is an evaluation, by means of questionnaires, that helps to know the players´ interests, with questions like: Which is your best stroke? Which is the toughest stroke for you? Or, On what aspects of the game would you like to work more? This way, the player will feel he is an active participant of his learning process, increasing his motivation and attraction to practice.

REFERENCES

Álvarez, A., y Del Río, P. (1999). Educación y Desarrollo: La teoría de Vygotsky. La Zona de Desarrollo Próximo en Desarrollo Psicológico y Educación. 11a-reimpresión, España.

Arnold, P.J. (1991). Educación física, movimiento y currículum. Morata. Madrid.

Baker, J., Côté, J., y Abernethy, B. (2003) Learning from the experts: practice activites of expert decision makers in sport. Research Quarterly for Exercise and Sport, 74, 3, 342-347https://doi.org/10.1080/02701367.2003.10609101

Bunker, D., y Thorpe, R. (1982). A model for the teaching of games in the secondary school. Bulletin of Physical Education, 10, 9-16.

Cárdenas, D. (2005). Fundamentos de las habilidades de los deportes de equipo: baloncesto. Granada: Servicio de Copias de la FCCAFD.

Castejón, F.J. (2003) A vueltas con los expertos y los novatos en el deporte: lo que no hacen, lo que pueden hacer y lo que hacen. En Castejón, F.J. (Coord.) Iniciación deportiva. La enseñanza y el aprendizaje comprensivo en el deporte. Sevilla: Wanceulen

Castejón, F.J., y López Ros, V. (1997). Iniciación deportiva. En F. J. Castejón Oliva (coord.), Manual del Maestro Especialista en Educación Física (pp. 137-172). Madrid: Pila Teleña.

Castejón, F.J., y López Ros, V. (2002) Consideraciones metodológicas para la enseñanza y el aprendizaje del deporte escolar. Tándem. Didáctica de la Educación Física, 7, 42-55.

Contreras, O. (1998). Didáctica de la Educación Física. Un enfoque constructivista. Barcelona: Inde.

Csikszentmihalyi, M. (1990). Flow: The Psychology of Optimal Experience. New York: Harper-Row.

Devís, J. (1992). Bases para una propuesta de cambio en la enseñanza de los juegos deportivos. En Devís, J. y Peiró C. Nuevas perspectivas curriculares en educación física: la salud y los juegos modificados, 141-159. Barcelona:Inde.

Devís, J., y Sánchez Gómez, R. (1996). La enseñanza alternativa de los juegos deportivos: antecedentes, modelos actuales de iniciación y reflexiones finales. En Juan Antonio Moreno Murcia y Pedro Rodríguez (Comps.) Aprendizaje Deportivo. University of Murcia. Murcia, 159-181.

Durand, M. (1988). El niño y el deporte. Barcelona: Paidós-MEC: Famose, J.P. (1992). Aprendizaje motor y dificultad de la tarea.Barcelona: Paidotribo.

Griffin, L., Mitchell, S.A., y Oslin, J.L. (1997). Teaching Sport Concepts and Skills. Champaing, Illinois: Human Kinetics.

López Ros, V. (2010) Perspectiva constructivista del aprendizaje y de la enseñanza del deporte. En Castejón, F.J. (coord.) Deporte y enseñanza comprensiva. Sevilla: Wanceulen.

Oña, A., Martínez, M., Moreno, F., y Ruiz, L.M. (1999). Control y aprendizaje motor. Madrid: Síntesis.

Raab, M., Masters, R., y Maxwell, J. (2005) Improving the «how» and «what» decisions of elite table tennis players. Human Movement Science, 24, 326-344.https://doi.org/10.1016/j.humov.2005.06.004

Ruíz Pérez, L.M. (1994). Deporte y aprendizaje. Madrid: Gymnos Sánchez, R. (2003). El modelo comprensivo y la enseñanza de las habilidades técnicas: ¿Dónde es necesario el debate? Actas del XXI Congreso Nacional de Educación Física. El pensamiento del profesor [CD-ROM], 18-20 de septiembre, Puerto de la Cruz, Tenerife: Universidad de la Laguna.

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