Original Article

# Tactical awareness, decision making and skill in youth soccer players (under-14 years)

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**ABSTRACT**

González-Víllora S, García-López LM, Gutiérrez-Díaz D, Pastor-Vicedo JC. Tactical awareness, decision making and skill In youth soccer players (under-14 years). *J. Hum. Sport Exerc.* Vol.8, No. 2, pp. 412-426, 2013. The purpose of this study is to assess the technical-tactical knowledge of high performance soccer players. The sport performance of sixteen 14-year-olds who play for the Spanish soccer club Albacete Balompie was analysed in a modified game as "seven-a-side match" using video assessment (Game Performance Evaluation Tool, GPET), this tool evaluates decision making and execution: control, dribbling, passing, shooting, getting free, set, marking, clearance, tackling, locking, trapping/interception, and defence help/double teaming. The players were interviewed twice to ascertain their basic knowledge. In the first interview they were asked about their knowledge of invasion games, taking soccer as a reference. In the second interview their procedural knowledge was analysed using video sequences of real game play from a "seven-a-side match". The results revealed that players acquired game performance (decision-making and execution) before specific game knowledge. They also performed better in response selection than response execution, and showed a greater command of offensive play and individual aspects of the game, both in terms of knowledge and game situations. **Key words**: DECISION MAKING, SPORT SKILL, SOCCER (FOOTBALL), YOUTH PLAYERS, DYNAMIC SYSTEMS.

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## INTRODUCTION

While not many research studies have been carried out in soccer related to prior knowledge before 2005, especially in youth categories, the literature does contain several plans for soccer training, although they do seem to be based more on intuitive and experience-related approaches than scientific ones. That said, they are extremely valuable. Experts in the planning of soccer training (Lago, 2007; Sans & Frattarola, 1999) state that specific training in technical-tactical aspects continues at this age. Sans & Frattarola (1999) find that specific training is introduced as a means of identifying and developing basic game situations in soccer, with there being a need to bring in pre-selected players. Lago (2007) argues that as well as focusing on individual aspects, training should also develope collective aspects, specifically all the attacking principles listed by Bayer (1992). All aspects of training should be considered, including those referred to behaviour (Olmedilla et al., 2010), so tactical questions should have a primary treatment.

In this age greater importance is therefore given to group aspects of play, which, in the opinion of Sans & Frattarola (1999), is due to the fact that soccer is markedly tactical in nature. Given the fact it is a team sport, any technical or physical actions are conditioned by tactical aspects, which explains why we term actions such as passing, shooting and running into space as technical-tactical aspects and place more emphasis on their acquisition. Young players have a great capacity and motivation for acquiring knowledge. What is more, MacPhail et al. (2008) explain the need to teach technical-tactical aspects from a joint and integrated perspective rather than adopting a traditional teaching approach that focuses on mastering each skill individually.

Once observed the traditional focus on soccer is not based on science but on experiences, what are the research proposals? As regards the development of sports performance in youngsters, researchers have studied the influence of knowledge, ability, skill execution, decision-making and the way in which young players play different sports. This line of research began with a study conducted by French and Thomas (1987), which compared expert and novice basketball players (ages 8-12) and found that the main component that set experts apart from beginners in basketball game performance was decision-making.

Nevett et al. (2001a, 2001b) evaluated the components of game performance and their connection after an invasion games intervention program. These authors evaluated the learning acquired by four graders through a 12-session intervention program. Nevett et al. (2001a) expose that students tended to bring partial or staged solutions instead of tracing consistent action plans, which suggests that the problem solving process is very similar to the acquisition of motor skills, which states that learning and mastery of a skill literally needs hundreds of tries.

Another study focused on soccer (Blomqvist et al., 2005) evaluated students in a higher academic grade. One of the most important conclusions of this research was that players reached the best results in decision making for offensive situations on ball. This result could be related to Williams & Davids (1995), so they expose that players with a high level of ability were shown to have greater and more developed declarative knowledge, which leads them to conclude that this is more attributable to their ability than their experience. Williams and Davids argue that declarative knowledge is acquired through practice ('doing it') and not solely through watching games ('knowing what to do'), and reached the conclusion that the variable that sets experts apart is the structured memory of games played and specific game knowledge. The greater the number and variability of the quality stimuli players receive, the greater the chance they have of increasing their ability to do and their knowledge of what to do. It seems evident that a minimum amount of

 

experience is necessary in order to develop complex game procedures (French & McPherson, 1999), although the quantity and quality of deliberate practice is fundamental (French & McPherson, 2004).

On the other hand, ecological dynamics is relevant for this theoretical framework as perception and action are examined jointly rather than treated as separate processes functioning independently (Araújo et al., 2006; Davids et al., 2006). Ecological dynamics approach to decision-making behaviours in team sports have examined the emergent, spatiotemporal functional patterns of coordination between immediate attackers and defenders performing in a dyadic system (1vs1) (Araújo et al., 2004; Davids et al., 2006). There has been a sustained effort to understand how attackers in team sports are able to score, and how defenders can move to tackle players or intercept passes.

Other studies with a similar research line (González-Víllora et al., 2010; González-Víllora et al., 2011; González-Víllora et al., 2012) indicate the levels of learning players under-12 (n = 14), under-10 (n = 14) and under-8 years (n = 14) got respectively in declarative and procedural knowledge, decision making and performance skills (control, dribbling, passing, shooting, getting free, set, marking, clearance, tackling, locking, trapping/interception, and defence help/double teaming). The feature that unites these studies is the ecological approach in relation to sport tactics. So the game context is composed of all teammates and opponents that could have any influence in a segment of play, as well as the area where the action takes place (Gutiérrez et al., 2011). Tactical contexts in invasion games can be grouped together according to action principles described by Bayer (1992). In attack, action principles include maintaining possession of the ball, penetrating the defence (moving toward the goal), and attacking the goal. In defence, action principles include regaining possession of the ball, avoiding and preventing the opponent from advancing the ball, and reaching the goal. For example, if the tactical-context adaptation performance in the attacker with the ball was analysed, when the game context is coded as maintaining possession of the ball, the player should make actions directed to keep the ball, such as protecting the ball until a better option comes up or passing the ball to a teammate who is unmarked but positioned behind the ball carrier. In the same way, when the game context is coded as penetrating the defence, the player should perform actions to get closer to the goal, such as moving with the ball toward the goal or passing the ball to a teammate positioned closer to the goal (Gutiérrez et al., 2011). Adapting to the tactical context of the game entails tactical awareness. The findings show that declarative and procedural knowledge is related, starting from the individual to the collective, and how offensive to the defensive. The level of decision making is higher than the declarative and procedural knowledge. This knowledge ("know-what") has a two-year delay on the practice ("know-how").

Gutiérrez et al. (2011) investigated the differences between young high level of expertise soccer players' (n = 55) and novice players' (n = 74) decision-making ability during performance of invasion games (ages: under-8, under-10, under-12, and under-14 years). Decision-making ability was assessed in invasion games that were appropriately modified for age and expertise. Game performance was videotaped, and measures of cognitive components were developed from observational analysis. Expert players remained superior in decision-making ability when variation in skill execution was controlled. Decision-making differences between levels of expertise decreased with age with regard to the first level (skill selection) and increased with age in relation to the second level (tactical-context adaptation). Findings are discussed in terms of implications for instructional focus and task design. Another study that provides information on expert-novice differences in procedural knowledge in young soccer players from local to international level (n = 140, aged 15 years) (García-López et al., 2010). Results indicated that no significant differences were found in procedural knowledge among the different competition levels but when combined, subjects

belonging to the national and international level had a significantly higher rate of procedural knowledge than regional, provincial and inexperienced players.

The aim of this study is to assess scientifically the technical-tactical knowledge of high level soccer players (under-14 years) in relation to tactical contexts. The objective is to ascertain the level of those soccer players at this age in order to have scientific information to adequate plannings of technical and tactical learnings in soccer. The decisions and executions of the players have been analyzed from a situated view, in terms of the tactical context in which they have been originated.

## METHODS

*Participants*

This study has been done through a collaborative project between the University of Castilla-La Mancha and Albacete Balompié, a soccer club which competes in the Spanish second division and has a reserve of young players conformed by twenty-one teams in the lower categories, from six to eighteen year-old. Players are selected by means of their level of play both in Spain and abroad; therefore they are highly-skilled players. For this study, the best sixteen players were selected out of the sixty-six fourteen-year-olds in the team. Six subjects from the whole sample were selected to be interviewed because of their intermediate tactical level by their soccer coach. Players trained for five hours of deliberate practice (French & McPherson, 2004), plus one and a half hour of competition game. Besides, students practised recreational game for two-to-four hours a week and had a two-season training experience.

*Measures: Instruments*

1. Interview about the basic knowledge of invasion sports: soccer.

With this instrument we access the technical and tactical knowledge that a player possesses at a certain point in his learning in a flexible manner. For its elaboration, we focused on the study by Griffin et al. (2001), who studied the previous declarative and procedural knowledge about soccer of secondary school students. In their case, they used an interview with open-ended questions and four sections: knowledge, sources of this knowledge, game experience, and self-perception about their soccer skills. The new interview is composed of four categories:

1) General concepts about what constitutes playing soccer well.
2) Specific knowledge about the sport: individual technical and tactical elements, position of the players, basic group concepts and game principles, other team concepts (basic game systems, types of defence and attack).
3) Tactical functions (the purpose of a technical or tactical element).
4) Tactical applications (when you should use a technical or tactical element or not).

2. Interview of soccer understanding through video sequences.

For the elaboration of this instrument, we focused on various sources (Blomqvist et al., 2005; Griffin et al., 2001). Initially, 22 offensive and defensive game sequences were selected from 7-a-side soccer games from a prestigious Spanish tournament, where under-13 teams from the most important Spanish and foreign first division clubs participate. Four soccer experts (physical education professors with more than 10 years of experience) chose the six video sequences that constituted the definitive interview. The first of the sequences was utilized as an example so the subjects could observe the way the interviewer and the interviewee interacted.

 

Each video sequence contained four levels of knowledge. For the first level, the subject is asked to identify the individual, group, or team technical and tactical elements that are demonstrated at certain moments in the sequence (e.g., What is player #8 in the white jersey doing?). For the second level, the interviewee must respond about the intentions that the player or team has in a certain context of the sequence (e.g., What intention does this player have?). For the third level, the player must interpret the contextual situation of a player or team (e.g., Do you think he is doing this correctly?). For the fourth level, the player must justify the response to the previous question, with which tactical rules of action are formulated according to the game context (e.g., Why do you believe the action that player #7 is doing is incorrect? What should he do?).

To adapt the two interviews to the communication between interviewer and interviewee, the players were offered the possibility of using a magnetic chalk board to demonstrate what they wanted to say. Both interviews were recorded in video and audio (mp3). Later, they were transcribed to paper and finally the analysis and the elaboration of final reports was carried out.

3. Game Performance Evaluation Tool (GPET).
In order to measure decision making and execution in real game contexts, we used a tool built under the base of the test by French and Thomas (1987). Besides, we have used other references as a base for our study (Griffin et al., 2001; Nevett et al., 2001a and 2001b). Next, there is a list of all the possible variables measured by GPET on table 1.

***Table 1**. Variables of the game measured in G-PET: soccer.*

| | ***Individual tactical technicals*** | | ***Groupal tactical technicals*** | |
|---|---|---|---|---|
| ***Game roles*** | **Game principles evaluated** | **It measures decision making and success in execution** | **It measures the amount of times it appears** | **Division of the group element into some individual ones** |
| On-Ball Attacker | Maintaing (1A) | Control (it only measures execution) | Pass and go | P1: First pass<br>P2: Second pass |
| | Attack (2A) | Pass<br>Moving with the ball / Dribbling / Screen | Counter-atack | Cp1: Initial pass. Cp2: Next passes inside counter-attack.<br>Cd1: Initial movements or dribbling. Cd2: Following moving with the ball into counter-attack or following dribbling. Cs: Shoot to goal |
| | Scoring (3A) | Shoot / Attempt on goal | | |
| Off-Ball Attackers | Maintaing (1A) | Shake off | Counter-attack | Cs: Cover in counter-attack. Player runs in support of player on-the-ball and in shake off situations.<br>Co: Coverage. |
| | Attack (2A) | Make a decoy run | | |

| | | | |
|---|---|---|---|
| On-Ball Defender | - | Marking, pressing or basic position<br>Defensive blocked shot<br>Tackle<br>Clear off | Adjust-Cover<br>(It measures both decision making and execution) |
| Off-Ball Defenders | - | Marking, pressing or basic position<br>Interception<br>Clear off | Cover<br>(It measures both decision making and execution) |

Modified soccer game applied to GPET (González-Víllora et al., 2010; González-Víllora et al., 2011; González-Víllora et al., 2012). This way, the traits of the game as "seven-a-side match" are the following: A-7 soccer (64 x 44 meters): divided into two halves. The goal areas have a dimension of 11 x 24 m and the goals 6 x 2 m (with goalkeeper); the ball is the one used for A-7 (number 4: circumference of 63.5 to 66 cm.); the game is composed of two 4-minute parts, with a 3-minute break between them.

GPET validity: Content validity was established through a panel of experts. Instrument reliability was established through test-retest procedures, with correlation coefficients higher than .80. Intra-and inter-observer correlations among the observers in all categories ranged from .77 to 1.00. More information about this tool or its validity can be found in García-López et al. (2013).

## RESULTS

*Interview on basic knowledge of invasion games: soccer*

Generic technical-tactical concepts (What is good soccer?):

The players do not yet have a clear understanding of the game characteristics that a player who plays good soccer should possess. Four of the boys spoke of efficiency in certain aspects of the game such as "being good on-the-ball, moving into space, passing well, dribbling well … always having the right attitude in games and being physically fit". In contrast P2 (Player 2) said that the most important thing was "to have fun and feel happy playing soccer because it is what I like more than anything else". P4 supported that view by answering, "Having a good time, feeling happy".

This focus on enjoyment is typical of boys this age (Wall & Côté, 2007). They are at a stage of their education where results ought not to be the most important consideration, although due to the pressure placed on them to perform; this is not always the case.

As regards the essential characteristics of a good soccer team, most of the boys responded that the team has to "play good soccer". P3 placed a special emphasis on team play, saying that everyone should be "a team that they shouldn't just go and do their own thing. They should all play as one". P6 said that a team that wins by scoring goals and not conceding any is a team that plays good soccer. This last answer merely underlines the result-oriented focus of many of the messages players receive.

Individual technical and tactical aspects:

When asked about the actions an attacking player carries out when in possession, five of the six players interviewed mentioned "shooting, passing, playing the ball out to the flanks", with only one of them (P4)

 

mentioning other possibilities such as “dribbling, taking corners, throw-ins and free-kicks”. Listing the actions a defender must perform against an attacking player with the ball, the boys all replied, “Marking” and “not letting him shoot”.

While these answers cannot be considered incorrect, they do seem somewhat limited given their soccer experience. One of the boys even had to use the magnetic board to outline the various technical-tactical possibilities, as he was unable to explain them or lacked the specific terminology. In attempting to list off-the-ball situations, the participants had problems expressing themselves and identifying the actions they could perform in that situation, these being reduced to “holding off an opposing player” and “covering for a team-mate”.

They were familiar with specific terms such as shooting, running with the ball, dribbling, passing, feinting, moving into space, marking or clearing the ball. It was significant that they had difficulty in explaining aspects such as controlling the ball, feinting or blocking the ball, though their lack of knowledge was most evident in concepts such as making a decoy run, blocking the ball or recovering one’s position in support of a defending team-mate.

Positioning of players, basic group concepts and principles of play:
All six players knew the positions that soccer players can occupy, including specific positions in each area of a team and the basic group aspects. However, none of the players were familiar with the core principles (Bayer, 1992).

Systems of play, types of defence and attack:
Four of the participants were largely familiar with the systems of play, providing examples of at least two systems of 11-a-side soccer and providing very basic explanations of the reasons for choosing one or the other but without being able to offer specific details. For example, P3 said, “The way you play, when you go out on to the pitch, the lines you’re going to have, like 4-4-2 or 4-3-3”. The two other players had problems with this concept and could not provide an answer.

When asked about types of attack and defence, the boys showed a better understanding of the former. Only one of the six had a full understanding of defensive concepts (man-to-man marking, zone defence and mixed defence), providing answers such as, “Man-to-man marking is when, for example, three players come up for a corner and there is one defender marking each of them. Zone defence is when you mark the player in your area of the pitch rather than the player on-the-ball, and mixed is when some players are man-to-man marking and others are defending zone. We do that a lot at corners, with three players defending zone in the six-yard box and another three man-marking in the penalty area”.

Four of the other five participants had heard of man-to-man marking and zone defence, but did not know what mixed defence was, while another player said he did not know what we were asking him about. What surprised us was that three of the boys did not know what man-to-man marking was, especially as the modified game used in the study required this type of defence, a concept that was explained verbally beforehand with the aid of practical demonstrations. It is also significant that one of the players did not know what zone defence was, as that is the system his team uses when it plays.

On the subject of attacking all the players knew what a counter-attack was and provided examples. P2 said, “Moving up the pitch quickly, passing the ball all the way to the other end, catching the opposition on the break”. P1 was also familiar with positional attacks (“You attack by playing the ball around, by building a

move") but not with direct attacks. Four of the players did know what a direct attack was ("Attack all at once, pushing up") but were unable to define a positional attack.

Functions and tactical application:
The players seemed to have a clear idea of the function of each technical-tactical aspect and managed to provide similar descriptions. Most of them understood, for example, that the purpose of a shot was to "score a goal", that dribbling and one-twos are a useful way of "getting past a defender" (P1 and P3) and that moving into space can help you "get rid of your marker" (P2).

While many of their comments were correct, the players had only a very basic grasp of these concepts. They had difficulties in describing other aspects such as tackling, moving into space, intercepting the ball and supporting a team-mate. Their conception of the tackle is illustrative as they associate it with "committing a foul" (P4) or with a very rudimentary way of preventing an opponent from moving forward (P1 and P3).

The participants had a clearer idea of when a certain technical-tactical aspect should not be performed than when it should, give several incorrect examples of the latter. For example, they said players should dribble when "there is plenty of space" (P2), they are "a long way from defence" (P4) or when they are "unmarked" (P6), and that it was necessary to tackle "to win possession back in the middle of the pitch" (P1), when their side "is a man short" (P2), "as soon as possible" (P4), or when "you think you are not going to get to the ball" (P6).

*Interview on game understanding using video sequences*
In level one, regarding the identification of technical-tactical aspects, the players understood the aspects involved in each game role. They followed the game situations and described them. By way of example, P2's response to sequence one was as follows: "He comes to receive the ball at a throw-in, tries to dribble round the opposing centre-half and another player takes the ball off him. He then presses the player who took the ball from him, wins back possession but another player comes along and clears the ball". Commenting on the same sequence P4 stated that the player "provides support at a throw-in, lets the ball bounce and tries to feint, and when the player from the opposing team goes on a dribble he tries to pressurise him and win the ball".

The only tactical concept that caused a problem was that of making a decoy run/pulling a defender away or hanging back in the hope that the opposition gives possession away (sequence five). In describing these situations two of the participants (P4 and P6) merely said that the player "just stands there". The other four, however, spoke of the player's tactical goals, although they did offer different interpretations. P1 and P3 spoke about the opposing players being pulled away to create more space in attack "by taking a defender away with him". In his response P2 suggested the possibility of making space for a team-mate: "He's leaving his space for the player passing the ball because if he stays there he gets in his way". P5 sees the purpose of this action as providing another option in attack: "It's so they can give him the ball and switch play to the other flank".

In level two, regarding tactical intentions, the players identified the basic attacking principles, namely maintaining possession, attacking and achieving the objective. They sometimes had difficulty, however, in explaining them or confused certain principles such as maintaining possession and attacking, or attacking and completing the move. In sequence five, for example, two of the participants (P2 and P4) provide correct answers: "He should pass it … because he has a better angle" (P2); "He should pass it back

 

because his team-mate is coming" (P4). Three of the other participants gave a correct answer but without providing an explanation. For example, P6 said, "He did the right thing because he gave a good pass back". The other participant gave an incorrect answer, saying, "No, because he should have shot from there".

With regard to defensive aspects, the participants knew when they had to defend the goal and that they have try to take the ball from their opponents, but they did not know when they had to prevent their opponents from attacking, as they were unaware of this principle. In this second level they displayed greater knowledge of offensive tactical intentions than defensive ones.

The results obtained in level three, on the contextual interpretation of each game situation, showed that the players had problems in interpreting the suitability of tactical decisions (in comparing the correct principle in each game situation with the decision taken in the video sequence). In some cases the respondents confused the tactical intention with technical-tactical aspects. For example, dribbling forward with the ball (sequence three) is an aspect normally employed as a means of attacking, though this is not always the case.

The respondents displayed a basic knowledge of the fourth and most complex level, which involved identifying the basic principles of the game. They provided only simple rules applying to one or two tactical factors at most. For example, in sequence three, in which a player advances by dribbling when it is easier to do so by playing a pass, five of the players provided an appropriate response and supported it with a tactical observation (e.g. "No, because he has a team-mate all alone here and he could easily give the ball to him": P4).

*Game Performance Evaluation Tool (GPET)*

In a "seven-a-side match" game, most of the game situations involved attacking (64.07%), followed by maintaining possession (33.09%) and finally by completing the move (2.84%). The total percentage of correct decisions made by the players in identifying the principle in each game situation was very high: 97.51%. The percentage results for each of the principles and their respective game situations were as follows: maintaining possession (85.5%), attacking (99.33%) and achieving the objective (94.44%).

Time analysis of the game revealed that the average duration of the game situations was 8.52 seconds, with a standard deviation of 5.28 seconds, which indicates that at this age and level of performance players alternate between moves of a short, medium and long duration. The average real playing time is 69.27% (332.5 seconds out of a total of 480). Tables 2 and 3 below detail the results obtained in relation to the technical-tactical aspects of attack and defence.

***Table 2**. Percentage of effectiveness of the tactical-technicals offensive actions*

| Game role | Tactical-technicals | Effectiveness in decision making | Effectiveness in execution | Effectiveness in total decision making* | Effectiveness in total execution* |
|---|---|---|---|---|---|
| On-Ball Attacker | Control | - | - | - | 88.3% |
| | Dribling: maintaing | 100% | 100% | 83.9% | 70.2% |
| | Dribling: attack | 82.0% | 67.0% | | |

| | | | | | |
|---|---|---|---|---|---|
| | Pass: maintaing | 97.5% | 77.5% | 97.9% | 68.2% |
| | Pass: attack | 99.3% | 69.6% | | |
| | Shoot: scoring | 97.2% | 53.7% | 97.2% | 53.7% |
| Off-Ball Attackers | Shake off: maintaing | 95.1% | 94.6% | 89.2% | 79.8% |
| | Shake off: attack | 88.4% | 87.9% | | |
| | Make a decoy run: maintaing | 100% | 100% | 98.6% | 100% |
| | Make a decoy run: attack | 50% | 100% | | |

**Total: It refers to decision making or execution in any game context.*

Table 2 shows that the attacking player with the ball is very successful in his decision-making with regard to passing (total: 97.86%; maintaining possession: 97.5%; attacking: 99.33). In terms of execution, the success rate in the first principle fell to 77.5%, with only ten of the 16 players playing one or more passes, and dropped even further in the second principle to 69.62%. What this reveals is that players have a good command of deciding when to make a pass but have certain shortcomings when it comes to executing the skill, especially in attacking situations. If we analyse shooting, the success rate in decision-making is very high at 97.22%, although only nine of the 16 players tried a shot, while the rate of successful executions dropped to 53.70%, which confirms that it is one of the most difficult aspects to perform during a game. Finally, effective decision-making with regard to dribbling can be broken down by principles. Dribbling was hardly used as a means of maintaining possession, with only four of the 16 players choosing to dribble with the ball at any stage, although they obtained maximum effectiveness in their decision-making and execution (100%). Ten the 16 players opted for running with the ball as a means of attacking, albeit with lower success rates in both decision-making (81.98%) and execution (66.98%), equating to a difference between the two of 14%.

When moving into space the attacking player off the ball registered a decision-making success rate of 95.07% in ball-retention situations and of 88.39% in attacking situations, with an execution success rate of 94.6% in ball-retention situations and of 74.36% in attacking situations, equating to a difference of approximately 14% between correct decisions and successful executions in attacking situations and of only 0.5% in ball-retention situations. It can be concluded, therefore, that the player has more difficulty in successfully moving into space when the aim is to advance on the opposing goal, which also is also the case with the pass.

Finally, we come to the results regarding the making of decoy runs/pulling defenders away, which only occur in ball-retention. Ten players use this aspect in maintaining possession, however, all of them successfully (a 100% success rate in decision-making and execution), which indicates that this aspect is used to give the team greater balance when it is on the attack (by the attacker furthest up the pitch).

 

***Table 3.*** *Percentage of effectiveness of the tactical-technicals defensive actions*

| Game role | Tactical-technicals | Effectiveness of decision making | Effectiveness of execution |
|---|---|---|---|
| On-Ball Defender | Marking | 83.1% | 46.0% |
| | Blocked shot | 100% | 10.0% |
| | Shake off | 88.0% | 50.9% |
| | Clear off | 100% | 100% |
| | Adjust-Cover | 100% | 94.4% |
| Off-Ball Defender | Marking | 75.9% | 71.3% |
| | Interception | 100% | 90.3% |
| | Clear off | 100% | 83.3% |
| | Cover | 97.8% | 74.6% |

Table 3 details the results relating to the player defending against an attacker with the ball, with maximum effectiveness being recorded for decision-making in clearing the ball, blocking the ball and providing support (100% in all three cases although these technical-tactical aspects are not used by many players, with only three, five and six players employing them in the test). Results were also high for tackling (87.96%), with nine of the 16 players making at least one tackle, and marking (83.05%), with all the players marking opponents.

The correlation between successful executions and correct decision-making in clearing the ball was complete, and in terms of providing support there was a difference of only 5.5% between the two. With regard to the other technical-tactical aspects, however, there were a larger number of errors in execution than in decision-making, resulting in the following percentage differences: marking (37%), tackling (37%) and blocking (90%). The success rate in executing blocking actions was only 10%, while the executing of marking actions and tackles also caused problems.

The player defending against an attacker off the ball was completely successful in his decision-making when clearing the ball and intercepting (100%, although only six players cleared the ball at least once during the test), and very successful when providing support (97.77%), with marking obtaining the lowest success rate of all (75.86%). The differences between correct decision-making and successful execution in these aspects were as follows: marking (4.5%), intercepting (9.5%), clearing the ball (16.5%) and providing support (23%).

## DISCUSSION

The aim of this study is to assess scientifically the technical-tactical knowledge of high level soccer players (under-14 years) in relation to tactical contexts. The decisions and executions of the players have been analyzed from a situated view, in terms of the tactical context in which they have been originated. Given the results have been obtained on the declarative and procedural knowledge, decision-making and execution, as well as their interrelationships, we can confirm that games learning in soccer is a complex process (Kirk

& MacPhail, 2002) that should integrate different factors. This process requires effort, cognitive involvement and intensity in deliberate practice (French & McPherson, 2004) in order to become a sport expert. In analysing the above in terms of the planning of soccer training (Lago, 2007; Sans & Frattarola, 1999) we have detected a high level of technical-tactical knowledge in addition to certain shortcomings that do not tally with the level of learning that these authors put forward for children of these ages.

This is reflected in "Interview on basic knowledge of invasion games: soccer", as the players have difficulties in answering the questions put to them. The respondents do not have a good grasp of the fundamental principles of attack and defence. In analysing match situations they have a clear idea of the principles of achieving the objective and winning possession but at times they are confused and uncertain about other principles.

In the game understanding interview based on video sequences the respondents were largely able to identify and understand the match situations but in some cases they had problems in identifying certain aspects of the game, especially group or collective aspects such as offside and zone defence. The players had difficulties in identifying basic principles applied to game contexts.

The GPET provided a tactical interpretation of the results obtained for this age group. One important aspect of the game is the playing of continuous passes, with each player involved in the move taking only one or two touches. Accuracy is very important, therefore. As play advances up the pitch so the speed of play increases. If speed and accuracy are combined, this unbalances the opposing team's defence.

It is important that players make quick and correct decisions, especially those players in the area of action or close to the ball (Lago, 2007), and as a result they must continuously monitor and provide information on the location of the ball, the organisation of the opposition defence, and the position of team-mates and free spaces. Pace of play is a related concept and should be varied in accordance with the interests of each team. The pace can be increased or decreased depending on the contextual situation on the pitch or other factors, such as the score in each game. These aspects are taken into consideration by these players, who tend to play up front, as the average time for each game situation is 8.52 seconds. The players also switch between playing the ball across the pitch and directly towards the opposing goal.

One of the observations made by Lago (2002) was also identified. The ball is passed around in accordance with a collective and individual intent that follows offensive principles. Relationships and interdependencies between technical-tactical aspects, such as passing, moving into space and receiving the ball, as those identified by MacPhail et al. (2008), were noted. In these interrelationships, the off-the-ball component (moving into space/marking) acquire particular importance as, in the opinion of Blomqvist et al. (2005), players spend most of the game time performing off-the-ball movements (attack and defence) and far less time performing with-the-ball skills, as the GPET showed. As concluded by Blomqvist et al. (2005) the players have a better knowledge of offensive aspects than defensive ones and perform them better. In these age groups players also specialise in positions, and although each player is free to move in all attacking areas, they take up the positions they normally occupy in competitive matches (e.g. the left-back moves up and down the left flank but is rarely seen playing as a forward or on the right).

As Lago (2007) argues, they therefore manage the field of play in a rational way, especially in the transition from attack to defence, when a team is more exposed to the risk of a counter-attack. This specialisation results in the players acquiring very evident attacking or defensive stereotypes, so they have an obvious

 

preference for attacking or defending, although if the game situation is clearly attacking or defensive in nature they participate in other aspects of play.

In defensive game situations of a longer duration, the defender gradually adjusts to the position of his opponent, and if defensive imbalances do occur then it is only at the start of the move, especially when possession changes hands. If the situation so requires, team-mates can support each other or swap the players they are marking, although on occasions they may arrive late, causing significant imbalances. As a result of this a logical collective order should be applied with regard to the player in possession and the possible movements of the other players, while anticipating the movements of the other team.

There was a tendency to defend set-piece situations zonally (e.g. at corner kicks players were positioned on the posts or at the corners of the area). This should not have been the case as the GPET is designed for man-to-man marking. The players thus failed to observe one of the rules of the game due to the influence of the behaviours they usually exhibit in competitive situations, having acquired a mechanised defensive strategy and having become conditioned by and dependent on their coach. The boys are aware, however, of the different ways of putting the ball into play and attempt to make the best decision in accordance with the positioning of the players of both teams.

French & Thomas (1987, p.31) suggest that "development of the sport knowledge base can influence actual game play without attainment of high levels of skill". This study confirms that, although the level of basic knowledge of soccer is lower than the level of play.

Comparing the results of declarative and procedural knowledge assessed through interviews of under-14 players with under-10 and under-12 players (González-Víllora et al., 2010; González-Villora et al., 2011). We note that there are two levels of representation differentiated between the three categories listed. The first level is formed by under-10 and under-12 players, while the second level comprises the under-14 players. With regard to decision-making and skill (execution), the results of the GPET in other studies (González-Víllora et al., 2010; González-Víllora et al., 2011; González-Víllora et al., 2012) compared to the current study, shown as under-8 and under-10 players have a similar playing level, so one cycle of representation, while the under-12 and under-14 players would be in a cycle of over-represented. Therefore, these levels of representation does not coincide with the categories established by the Spanish soccer federation, therefore should not set goals or competencies by age but by technical-tactical knowledge and decision making representation cycles.

## CONCLUSIONS

We believe that the players are better able to learn and consolidate their decision-making ('doing it') than to acquire conceptual knowledge ('knowing what to do'), as they show when explaining the what, the how, the when and the why of the technical-tactical actions performed on the field of play. As a result, their performance on the pitch is of a higher standard than their theoretical declarative and procedural knowledge. With regard to declarative and procedural knowledge the players know or perform the individual technical-tactical aspects better than the collective ones, and thus have a better command of offensive than defensive game situations.

Having raised the issue of programming teaching-learning in soccer, we believe this paper provides important information that can enhance the quality of this process. One of the essential aspects of these age groups is the combination of technical-tactical aspects of passing and moving into space in offensive

situations, as execution rates are significantly lower than the level of correct decision-making. There should be a focus, therefore, on the deliberate practice of these skills. Meanwhile, the most important defensive aspects that need to be worked on are marking and providing cover.

There is little doubt that one of the most important jobs of a teacher or coach is to design creative tasks and games that help players develop their knowledge and give them the opportunity to acquire interrelated technical-tactical aspects (e.g. marking, providing cover and recovering one's position in support of a defending team-mate). More studies are required in this area of research in order to a) ascertain how young children should be taught soccer and other sports in accordance with the different contexts in which they are played; b) identify the most suitable way of sequencing content and thereby make the teaching-learning process more effective; c) find out more about decision-making in team sports and its impact on the effective execution of different skills.

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