Original Article

Performance Analysis in Soccer. Potentialities and challenges in the African context

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Abstract:

The practice of performance analysis to optimize training methods and competition strategies is a sector that, during the last decades, has been characterized by a continuous growth. Sport organizations are discovering an increasing interest for the analysis of sport performances through large aggregates of data. The main fields of application of performance analysis in sports are to improve coaching methods, to optimize transfer market strategies, to boost the physical condition of the athletes, to review the results of marketing process and sponsorships deals. The aim of this article is to describe the status and the potential growth of performance analysis in South African soccer. The methodology for this study has been focused on a thematic analysis through document analysis and interviews with professionals as coaches and analysts in order to highlight the key concerns involved in the practices of performance analysis in South African soccer. The main purpose of this study is to highlight whether the local soccer context makes use of the potentialities of performance analysis and to recognize the specific difficulties of the milieu.

Key words: football, performance analysis, match analysis, Africa, coaching.

Introduction

Analysis of athletic performances and coaching strategies, by reviewing the results of the marketing process and sponsorships opportunities and developing accurate media narratives is a sector that attracts increasing attention in the sports business. Among the soccer fans, performance analysis starts to grow in popularity thanks to the volume by Anderson and Sally (2013).

This article focuses on performance analysis in order to improve training methods and matches results. The precursor of performance analysis in soccer is work done by Charles Reep (Pollard, 2002). Reep and Bernard Benjamin published a statistical analysis of patterns of play in English soccer from 1953 to 1967 in the *Journal of the Royal Statistical Society*. Valeriy Lobanovsky studied the patterns of Ukraine soccer in the 1970s, while former England manager Graham Taylor used an unsophisticated form of analytics to explain the long ball tactics of Watford in the 1980s (Sullivan, 2016). The conference proceedings of the Science and Football World Congress represent a relevant contribution to the literature body of performance analysis. Since the first Congress, hosted in Liverpool in 1987, match analysis represents one of the central topics (Reilly, 2009:4) discussed at these milestone conferences that reached the eighth (VIII) edition in 2015. In the proceedings of the sixth (VI) edition, the analysis by Bergier, Soroka and Buraczewsky (ibid.:197) focused on the dynamics of the actions ending with a score during the European Championship of female soccer. The comparative perspective between male and female or young and adult soccer, on the subject of the organization of the play and the physical demands during a match, is a purpose for further analysis, in order to find appropriate performance analysis methods according to age, gender or even climatic situation. Sarmiento et al's. (2014) work focused on the review of the existing literature on performance analysis of soccer, in order to identify common research topics. Four main variables of performance are recognized from this review. The game location, quality of the opponents, match status and difference of plays between match halves represent the key patterns of evaluation.

As Carling, Williams and Reilly note (2005), the limitations of the coach's reminiscences during a match is thirty percent of the overall ninety minutes and is influenced by several factors such the limits of human memory, the prejudices regarding a player, the effect of emotions and the multi-inputs viewing environment such as a stadium.

Since the 80s the start of video technology recording takes the analysis to an innovative dimension. The benefits of video analysis are multiple. The most significant is the potential to study an action a number of times in order to recognize and to show to the team the leading patterns of the play. Conversely, the use of video analysis could represent a conflict-ridden subject in the work relationships between coaches and players, as a player could experience the impression that the video analysis system is a "big brother" (ibid.:33) that would have consequences in the play-style spontaneity, especially when the individual play-style is compared to a supposed-to-be-perfect performance. The combination of video analysis and the progress of computer systems

and portability leads to the development of the electronic tracking system that made it possible to track the position and the movement of each player in real time. A significant barrier in the prospect of using the tracking system is the microchip that the players have to wear and the cost for the initial installation in the stadium. The soccer governing body (FIFA) allowed the use of electronic performance and tracking system (EPTS) in its memorandum of 7 July 2015. For instance, the use of goal-line technology in assisting with refereeing decisions was, after years of debate, allowed by FIFA on July 2012. The use of the GPS tracking system, which is considered an EPTS device, could convey issues regarding the safety of the players in cases of contact with the rigid object, is positioned in the body as it is the electronic device necessary to send the inputs regarding the player performance.

Generally, the significant progress in the performance analysis of soccer arose through the development of technologies. Through a composite technological equipment of GPS systems and semi-automatic multiple cameras, Randers et al. (2010) made a study focused on a comparative revision of four different match analysis systems during the same test-game. The practices of video analysis and computer-based statistical data collections give the opportunity to work with an increasing aggregate of data. The feedback from this considerable amount of data significantly grew the objectivity of the analysis regarding a match or a training session. Before the “technological era” of performance analysis, the coach’s observations and notes represented the principal method of evaluation, holding an intrinsically and problematic subjectivity regarding the data collection process and consequently the impartiality of the analysis. Similarly, the subjective interpretation of the data, due to a possible prejudgment associated with a player or to a specific phase of the match, characterizes the “pre-technological” form of performance analysis. Therefore, performance analysis becomes an essential tool in the technical-coaching arena. The response of South African soccer environment to the development of performance analysis highlights the potentialities and contradictions of a sector that is significantly linked to technology. In this regard performance analysis in sports is tied to the worldwide technological and digital divides.

Method

It is relevant to note that, to the best of the knowledge contained in the literature body, no evidence of performance analysis studies focused on the context of African soccer was found. During the literature review process, a dissertation regarding the engagement of non-professional South African rugby coaches using performance analysis (Magwa, 2015) was found. The purpose of this study was to highlight whether the South African soccer environment is responsive to the use of performance analysis for coaching methods and the key aspects related to this use. The methodology of this study was qualitative. Data was collected from a document analysis of specialized magazines, websites and newsletters. Ten interviews were conducted with soccer professionals as coaches and soccer analysts active in South Africa aimed to discover the main issues regarding the use of match analysis in their daily activity. Additionally, a participant observation was conducted during the ProZone Sports Foundation Course hosted in Cape Town in April 29-30 2016. A thematic analysis was conducted for the examination of the data.

The research was approved by the UKZN Research Ethics Committee in accordance with the protocol reference number HSS/0247/016.

Result. Perception and potentialities of match analysis in South Africa soccer

The FIFA World Cup hosted in South Africa in 2010 contributed to improve the soccer facilities, such as stadiums and training grounds. South Africa was ranked at position 62 in the FIFA rankings on September 2016 despite the National team’s failure to qualify for the 2017 African Cup of Nations. As noted by Rintaugu et al. (2012), North-West and Southern African countries have a higher soccer performance standard than Uganda, Kenya and Tanzania. The analysis of the factors that influenced the low performance of soccer in East African countries identified inadequate funding, lack of transparency in the administrative process, inadequacy of facilities, incentives and scarcity of skilled professionals as the reason for the inadequacy of the training (2012:139).

Match analyses are currently considered an essential part of the training method. Although the standard of available technology is considered higher in South Africa than in other African countries, performance analysis is not commonly identified as a sector of investment as the Council for Scientific and Industrial Research (CSIR), as the Department of Sport Technology Centre explains in its website: “Despite its popularity and huge demand worldwide, funding for performance analysis is scarce and South Africa is no exception. The CSIR-Sport Technology Centre benefits from only two funding sources: through direct product sales (an average of R30 000 per software package) or by selling its technological capability at a contracted rate”

The access to funds is therefore a key aspect in order to provide the tools for match analysis as stated by Wade Benn in Forrester (2012):

“At the moment top-level analysis depends on timeous access to data, good software and hardware, and educated people. African soccer typically struggles with access to finance, organized institutions and educated people. Analysis is possible with the right people, but these people can easily be sabotaged by ill-informed people, technology which isn’t dependable or high-enough quality and poor organization. However, I think the

money is there. Think of the cost of one of the club owner's cars, or the amount spent on travel, wages and medical care for a couple of reserve players who will contribute very little over the course of the season. As for people, they can find young, passionate coaches who have some computer skills, and have them trained to use whatever software is purchased."

Recruiting skilled professionals is an additional challenge, as the Sport Technology Centre of CSIR states in the website: "We are always faced with a skills dilemma. Do we employ computer specialists with an interest in sports, or do we employ sports people with an interest in computers? Usually, we'd rather employ computer people and teach them about sports. The CSIR's involvement in sport technology, despite its international recognition, is known to the South African public and sports administrators only through word of mouth".

To the best of my knowledge the Sport Technology Centre of CSIR is no longer active. Therefore private companies have entered the business of performance analysis in the African continent. Prozone and Dartfish, two of the leading multinational companies in performance analysis of sports, have branches in South Africa. Dartfish is based in Gauteng while Prozone has set up an office in Cape Town. Both companies are proactive in organizing courses in order to extend the knowledge and the use of their performance analysis software. Regarding the activity in South Africa, Taz Raza, ProZone's Education and Training Manager states that:

"The educational journey we have taken with Ajax Cape Town over the two seasons has been a very special one. The knowledge shared between our offices has provided us with the first steps in shaping the footballing landscape in South Africa and the response from those who have taken part has been fantastic. It has been great to see the development of the youth team both on and off the pitch, and we are extremely proud to be the pioneers of this project in the Southern Hemisphere" (Kick Off, 2015).

Ajax Cape Town appears to be one of the most proactive PSL clubs in using performance analysis in the daily training routine of the main team and the youth academy. Ajax Cape Town coach, Roger De Sa, referring to ProZone performance analysis system, declares: "You've got to be careful that you don't get carried away with it, but it can be very, very beneficial as a team, as a coach, as individuals, as scouts, as agents, as clubs – it's endless. It's a fantastic aid, but don't let it choose your team – use it to improve your team" (Kick Off, 2015).

The involvement of the coaches is a key aspect in training through performance analysis feedbacks. According to the analyst of a South African youth academy (interview no. 8): "The coaches are proactive, but the players are not stressed, we use it [the analysis software] as a learning tool, and we are an amateur team so we don't put pressure, we just try to teach them how to improve performance and decision making based on some of the analysis. There is a lot we can do to improve our game, our performance, our decision making and video analysis is one of the best ways for young players to see what the coach is trying to explain".

Another analyst (interview no. 1) made the following statement indicating that the situation is completely different when referring to the coaches and their involvement on match analysis: "A lot of them don't understand, because they are old school, because they think we are challenging their thinking, they fear the challenges. Sometimes they don't even allow the guys with the camera to provide the video".

It emerges that the use of performance analysis depends primarily on the coach's attitude. Regarding this aspect it is possible to hypothesize a polarity between performance analysis enthusiasts and sceptics. The last group might be linked to a more "traditional" soccer in which technology could be perceived as an "intrusion". Further studies that aim to investigate the coaches' approaches regarding performance analysis in relation to their ages and experiences are needed.

On the dichotomy between traditional and modern soccer, Ajax's video analyst Paul Lamb says that using analysis software is fundamental in contemporary soccer:

"Video analysis I feel is key not just in terms of the opposition analysis but also the development of the team. It is a must in modern day football. A team would not be able to function at a maximum without video analysis." (Kick Off, 2015).

In relation to the software, Amisco Physical Data's Craig Von Wielligh, Fitness and Conditioning Trainer at Ajax Cape Town explains that:

"It would be difficult to still implement the physical data in to our training. There are definite advantages to having the systems at your disposal; how exactly the Coach and Medical Department interpret any physical data is crucial. Typically our focus in terms of using Amisco analysis for matches has been more tactical rather than physical, using their excellent video capabilities" (James, 2012).

Two analysts believe it is fundamental to present the feedback to the players in an immediate and effective approach (interview no. 5 and interview no.6):

"We used Amisco data which was formulated during a game and then translated onto document form for the players to peruse. We also used video analysis post and pre-match as we had our own videographer. The players realize the importance of getting good technical feedbacks but the manner in which it is done should not be time-consuming as footballers do not have high attention spans. Meetings should be conducted in not more than fifteen to twenty minutes".

“I believe for the coaches it helps a lot because we get focused clips and data that help us prepare for upcoming matches. For players, my experience is that players prefer feedback on their performance than feedback of opposition. Both types of feedback, my experience shows that in South Africa the moment you go over six minute sessions with team it becomes too long and they can’t absorb information and we lose them”. As is evident from these two last interviews, one of the focal issue related to performance analysis feedback to the players depends on the efficacy of the communication. The visual communication is a relevant approach to present the feedback of the analysis:

“That is the level we want to reach at our teams, where the analyst can give live feedback during sessions and half time talks where we can show the players rather than just talk, as I believe that is the best way for them to learn, to actually see rather than hear, then there can be no doubt” (interview no.4): .

As the use of soccer performance analysis increases, it is becoming essential to find mindful and efficient approaches to communicate the outcomes of the analysis. The communication of the data represents a key issue related to performance analysis in soccer.

Discussion.

Three key themes regarding the practice of performance analysis in the South Africa soccer context were highlighted:

1. Involvement of the coaches.
2. Need of skills and technological equipment (as specific software for video-editing and affordable internet network).
3. Efficacy in the communication of the feedbacks.

The collection, analysis and communication strategy of performance analysis data have a significant role in contemporary sports. The improvement of the training methods is one of the main fields of application of performance analysis. The digital and technological divide and the capacity to implement dedicated software are aspects that the domain of sport has to consider in its further development.

As Boyd and Crawford (2012) noted, the access to big data and different sets of database convey to a disparity in the conditions of basic knowledge access between the centre (the richest companies and well-resourced universities) and the periphery (the outsiders with less resources). This point of view regarding the big data (that are the outcome of the performance analysis process) could be extended to the resources for sport developments along with the potential to access performance analysis software and database. The developing countries have to deal with dynamics correlated to the technological and digital divides, aspects that could influence the growth of the performance analysis of sport sector. To identify whether the current developments and practices in the performance analysis of sport are progressing in relation to a specific context is a matter related to the “technological divide” of a milieu, like South Africa or elsewhere, in an arena of knowledge that nowadays embraces multiple segments of sport. The African continent is in need of contributions in this area of study in order to find strategies that made performance analysis tools, knowledge and skills accessible.

Conclusion

Performance analysis in sport is a field characterized by an increasing number of applications, not only for coaching strategies, but also in sport marketing, media and in the scouting practice. In South Africa, on one hand there is an increasing interest to improve the use of performance analysis. On the other hand it emerges that specific concerns have to be addressed, not only in regard to South Africa, but in the challenge to improve the standard of soccer in the whole continent. To begin with, the growth of African professionals in the sector of performance analysis of sport is crucial for its improvement. In Africa, the inaccessibility to technological equipment due to its cost (not always affordable for the budget of an amateur football club) and the instability and high rate of the internet connection represent a barrier for the exchange of video-data and related video-analytical feedbacks. The technological and digital divide is a key aspect to be evaluated for the improvement and the prospect to expand performance analysis of sports in the African continent. The gap in the accessibility to performance analysis systems needs to be filled in order to grow soccer technical and tactical skills, both at the grassroots and at the professional level, as South African soccer coaches have shown responsiveness in the use of performance analysis software. African soccer, even the Ivory Coast who is the first FIFA-ranked country in the continent at the 34th position, has frequently failed at the international level. The gap in the use of performance analysis in the training might create a greater divide, not merely regarding the performances in the field, but largely in the soccer’s management sector.

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