What about qualitative research in performance analysis?

The term performance analysis is used to describe an approach that combines biomechanical analysis (e.g. analyses of technique, motor control, etc.) and notational analysis (e.g. match analysis) in order to provide coaches and athletes with an objective set of information on performance (Bartlett, 2001; Hughes, 2004; Hughes and Bartlett, 2002a; Hughes and Franks, 2004; Lees, 2002). Usually, this approach focuses on numerical indicators (i.e. quantifiable or countable) that target and capture diverse but specific dimensions of sports performances. These indicators are sub-categorized into general performance, tactical, technical, and biomechanical indicators, and they are defined according to the study objectives and the specificities of the sport under consideration (Hughes and Bartlett, 2002b). For example, these indicators may be players’ movements on the playing field (e.g. McGarry et al., 1999; Passos et al., 2009), the duration of tennis rallies (O’Donoghue and Ingram, 2001), the release speeds in javelin throwing (Bartlett et al., 1996) or the take-off velocity in the men’s long jump (Lees et al., 1994).

How does qualitative research contribute to performance analysis? This question is eminently reasonable, as it is raised in a research field that aims to analyse sports performance using essentially measurable and quantifiable indicators. Yet qualitative research has progressively infiltrated performance analysis, to such a point that it is sometimes difficult to distinguish qualitative studies from quantitative studies (O’Donoghue, 2010: 210–1). As an illustration, this approach has contributed to a way of studying sports biomechanics based on the qualitative...
analysis of movement patterns (e.g. Bartlett, 2007; Knudson and Morrison, 2002). Qualitative analysis in biomechanics describes and analyses movements non-numerically by seeing movements as ‘patterns’, while quantitative analysis describes and analyses movements numerically. The study of Lafont (2007) on the head position in tennis during the hitting phase is a good illustration of the qualitative research that can be conducted in the field of performance analysis. This shift from strictly quantitative analysis towards more qualitative methods can be explained principally by growth in the profession of movement or performance analysis. Although sports biomechanists mainly use a quantitative approach to analysing human movement patterns in sport, movement or performance analysts generally use qualitative or quasi-quantitative analysis (Bartlett, 2007). The practical value of qualitative and quasi-quantitative movement analysis lies in its effectiveness in helping coaches to identify good and bad techniques, to compare athletes’ performances and/or to identify injurious techniques (Bartlett, 2001). However, despite the undeniable interest of the qualitative analysis of movement patterns, we have chosen to give special attention to qualitative research with a psychological orientation, which is less well known in performance analysis, although it also provides useful results in this field. This type of research seeks to give an account of the cognitive and experienced dimension of sports performance, based on the assumption that performance cannot be reduced to observable behaviour: it always comprises an important interpretable component that allows athletes to adapt to the changing characteristics of the competitive situation (e.g. Hauw et al., 2003; Sève et al., 2002).

In sport and exercise psychology, qualitative research is distinguished from quantitative research principally by the emphasis given to descriptions ‘from the inside’ of observed phenomena (e.g. Biddle et al., 2001). Qualitative research (i.e. interpretive, naturalistic, ethnographic or phenomenological) tries to account for the athlete’s subjective experience, thereby offering a detailed (or in-depth) description of how athletes make sense of their world (e.g. Dale, 1996). This type of study offers interesting opportunities for performance analysis as it is widely acknowledged that qualitative research is especially suited to (a) understanding the meaning of events and actions, (b) understanding their context, (c) identifying unanticipated phenomena, and (d) understanding the processes by which the events and actions take place (e.g. Stelter et al., 2003). This type of research can, for example, identify the performance indicators taken into account by athletes even during competition. These subjective indicators may in some cases be inappropriate and thus lead to deterioration in performance (which justifies the continued use of classic methods in performance analysis). However, in other cases, these same indicators, even when partial, may be pertinent and sufficient for making decisions in dynamic and uncertain situations presenting with strong time constraints.

In this chapter, we present the results of several studies conducted within the theoretical and methodological framework of the course-of-action (e.g. Theureau, 2003). These studies provide insight into what descriptions from-the-inside can offer to performance analysis. The course-of-action framework seems to be particularly well suited for performance analysis for many reasons: (a) it reaches the subjective dimension of performance and identifies performance indicators from the point of view of the athletes; (b) it responds to both athletic and scientific needs and concerns; (c) the procedures for data collection function as a short-term aid to athletes and coaches; and (d) the results can help coaches to develop new training programmes.

Performance described from-the-inside: an illustration with the course-of-action methodology

The observational method used in studies conducted within the theoretical and methodological framework of the course-of-action differs from the dominant qualitative template in sport and
exercise psychology, which is the combination of protocols for semi-structured interviews and content analysis (e.g., Côté et al., 1995). It typically encompasses the intensive collection of observational data regarding actions and communications in real competitive situations, complemented by data from self-confrontation interviews.

The observational data are collected during the period of participative observation by the researchers, which is part of a long-term collaboration agreement with the athletes and coaches (therefore requiring ethnographic notes and collections of diverse traces of the activity: action plans; written preparations for the training sessions or competitive meets; transcriptions of significant events, etc.). They are also collected by audiovisual recordings of the behaviours and verbal exchanges of the athletes and coaches in situations of training or competition. Each intervention requires an ad hoc adaptation of the set-up (recording equipment may be portable or fixed, filming may be close-up or distant, distance transmission, etc.).

During the self-confrontation interview, the athlete is confronted with an audiovisual recording of his or her activity and is encouraged to describe and comment on the personally meaningful elements of this activity in the presence of the researcher (Theureau, 2003). The researcher tries to place the athlete in an attitude and mental state favourable to this description, using prompts concerning sensations (what sensations are you experiencing?), perceptions (what are you perceiving?), focalizations (what has your attention?), concerns (what are you trying to do here?), thoughts and interpretations (what are you thinking about?), and emotions (what emotions are you experiencing?). These prompts are not systematic but rather are made as needed to encourage the athlete in describing his or her activity. Their main purpose is to help the athlete to reconstitute his or her experience during the activity period under study while limiting attempts at justification. By guiding the interview with only a set of generic questions, the researcher does not a priori seek a particular content. The self-confrontation interview therefore differs from the semi-structured interview, which is conducted using a predetermined interview guide around a predetermined theme. This procedure of self-confrontation therefore increases the chance of successfully capturing the athlete’s experience and discovering the hidden dimensions of performance (e.g., Dale, 1996).

In summary, the self-confrontation interview is a precise research protocol for gaining access to the athlete’s experience. It can be used to identify the non-observable phenomena that are not spontaneously verbalizable by the athletes in other forms of interview or debriefing. This methodology has several advantages: (a) sports performance can be studied in real situations without the risk of penalizing the performance of the athletes; (b) researchers have access to the experiential dimension of performance, including athletes’ concerns, intentions, sensations, emotions, expectations, and interpretations; and (c) changes in these dimensions over the course of the performance can also be determined. Other methodologies, such as the explicitation interview (e.g., Gouju et al., 2007), may also be used to access the experience of athletes. However, the self-confrontation interview presents a major advantage for performance analysis: it is grounded in the objective evidence of performance – that is, the behavioural and contextual data from objective audiovisual recordings. This specificity is a strong argument in favour of the self-confrontation interview in the field of performance analysis. By confronting the participant with the traces of his or her activity, the self-confrontation interview allows a consensus to be built from the analysis of a concrete performance situation by an outside observer of the behaviour (whether a researcher or a coach) and the athlete who was engaged in the situation.

**Another way of understanding performance**

The purpose of this section is to show how a description from-the-inside provides a better understanding of performance. To do so, we will rely on the results of research conducted in
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collaboration with table tennis experts. These studies were all conducted within the theoretical and methodological framework of the course-of-action and have been published in peer-reviewed journals (e.g. Sève et al., 2002, 2003, 2006; Sève and Poizat, 2005).

The first study was conducted in collaboration with the French Table Tennis Association and the French Ministry of Youth and Sports. The aim was to study the activity of expert table tennis players during competition with the goal of optimizing training procedures. The performance analysis from the player’s point of view revealed two characteristic modes of involvement during matches: exploration and execution (e.g. Sève et al., 2002, 2003). These modes expressed the two characteristic preoccupations of table tennis players: interpreting the interplay of one’s own strengths and weaknesses with those of the opponent and scoring points. The players’ activity during matches could thus be seen as an alternation of exploration and execution phases (Sève et al., 2003). During the exploration phases, they carried out exploration activity to reduce their uncertainty about their opponent’s actions and to orient future courses of action. During the execution phases, they looked for immediate opportunities to make winning plays. Prior to September 1, 2001, matches consisted of two or three winning sets of 21 points, with the players alternating the roles of server and receiver every five points. Since September 1, matches consist of three or four winning sets of 11 points, with players alternating the roles every two points. The results also showed that the players divided the 21-point set into three characteristic periods related to the successions of five serves: the beginning of the set (the first four successions of serves); the middle of the set (the following two successions); and the end of the set (the last two successions). They assumed that they could perform exploration actions at the beginning of a set without risking their chances of winning. They prolonged this period in an attempt to identify as many effective actions as possible to be used at the end of the match (Sève et al., 2003). This exploration was abandoned when their opponent had already won two sets and the loss of a third set would mean the loss of the match (Sève et al., 2003).

A second study focused on analysing the effect of a rule change on the players’ activity organization (Sève and Poizat, 2005). In 2001, the International Table Tennis Federation implemented a new system for scoring points. Since this rule change, matches consist of three or four winning sets of 11 points, with players alternating the roles every two points. The analysis showed two principal results under the new scoring system: (a) a decrease in the duration of exploration phases compared with execution phases and (b) a new mode of engagement: deception. This mode expressed a new concern of table tennis players, which is to dissimulate any element that would help the opponent to be more effective. Although this concern was present under the old scoring system, it was much more important under the new system. The players felt it was much easier to hide their weaknesses from their opponent, since they were forced to limit the exploration phase. This concealment was accomplished by bluffing actions; that is to say, by making difficult shots that the players knew had little chance of succeeding but which, from their point of view, would impress the opponent. By bluffing, they attempted to disturb the construction of their opponent’s interpretations about the balance of power. In addition, the players found that the early exploration actions posed a threat to winning, and they therefore placed greater emphasis on maximal effectiveness from the very beginning of play. They had thus shortened the exploration phase, which occurred only during the first set: as soon as the players identified the actions that disturbed their opponent, they reproduced them. For the lost matches, exploration did not occur beyond the second set. Even when they had identified only a small number of actions that perturbed their opponents, they did not continue to explore. Under the old system, the element that determined the shift from exploration to execution activity was the number of sets won by the opponent. The players abandoned their
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exploration when the loss of the current set would put the match at risk. Even when they were ahead of the opponent by a set, they continued their exploration activity at the beginning of sets so that the greatest number of effective actions could be employed in later sets and at the end of the match to increase their chances of winning. Under the new scoring system, the shift from exploration to execution seemed to have little relation to the number of sets won by the opponent. Their activity seemed circumscribed by the duration of a single set and not by the succession of several sets.

This type of qualitative study gives major attention to the actors’ point of view, which makes it particularly interesting in the field of performance analysis. The originality of the results is partly due to the use of descriptive categories and analysis of experience that do not a priori reduce actors’ activity to the usual categories of technical or tactical language or to classes of task analysis. For example, in the case of the from-the-inside studies in table tennis, the results revealed the importance of certain components of activity in table tennis competition (exploratory and dissimulating modes of engagement) that were not taken into account by coaches (Sève et al., 2006). Thus, understanding the organization of athletes’ activity is likely to complement or enhance match analysis. Indeed, knowing the distribution and alternation of the exploration, execution, and deception phases of a table tennis player can help make sense of objective indicators, such as the type of service, the shot selection, the execution shot, the shot distribution, and so on (e.g. Baca et al., 2004; O’Donoghue, 2004), as well as of the observations following the change in the scoring system (e.g. Zhang and Hohmann, 2004). The alternating phases of exploration, execution, and deception indicate that making the same shot may not always have the same meaning for the player (especially if it is produced at the beginning or end of the set), which can be important to take account of in the interpretation of the data from notational analysis.

The contributions of descriptions from-the-inside are not limited to the context of sports games. Various studies using the theoretical and methodological framework of the course-of-action have also shown the benefits of this approach with regard to acrobatic performance (e.g. Hauw and Durand, 2008). Several studies in collaboration with trampolinists, for example, revealed the variations in athletes’ involvement modes during move execution (e.g. Hauw et al., 2003; Hauw and Durand, 2004). These studies also pointed to the substantial differences in how the trampolinists organized their performances. By taking into account their point of view, the analysis was able to show that the same move could be broken down into a variable number of meaningful phases (three to seven), depending on the athlete. The sequence of moves was organized by groupings (e.g. the first three, the middle two, the next three, and the last two) and was not a mere juxtaposition of moves. Moreover, the groupings were characterized by specific modes of involvement (pushing hard, seeking to reposition the body, calming down the exercise, etc.). Aerial freestyle skiing was also examined from-the-inside (Hauw et al., 2008). The analysis revealed that the skiers organized performance into six sequences: (a) pick up speed in the descent; (b) manage the curve of the hill; (c) take off; (d) manage the exiting of the springboard; (e) perform rotation; and (f) organize the landing. From the skiers’ perspective, each of these sequences provided the conditions for deploying the next sequence. This suggested that successful landing resulted more from the sequence chaining than from the final adjustment of the angular momentum at the time of contact with the landing hill. Thus, the athletes’ ability to land on their feet could not be attributed to the final step in the leap, but rather to a gradual process that began at the very start of the leap. In conclusion, these studies have shown that a description from-the-inside even in non-game sports provides original insights into the intelligibility of performance by, for example, including athletes’ kinaesthetic sensations.
Improvement of sports performance and training

These qualitative studies conducted within the theoretical and methodological framework of the course-of-action have a place in performance analysis, given their focus on the analysis and improvement of sports performance. The coaches and athletes who participated in this type of interview reported beneficial effects and greater insight into performance (e.g. Sève, 2006). We can distinguish three types of performance support: (a) ‘immediate’ support deriving from the data collection methods; (b) ‘short-term’ support from the researchers to both the athlete and coach; and (c) ‘longer-term’ support from the researchers to the broader community of coaches and coach educators.

The first type of support is immediate and arises from the characteristics of the data collection methods. The self-confrontation interviews give the athletes the opportunity to relive and describe their performance to a third party, a process which in itself has the salutary effect of helping them to better understand the processes of production and deterioration in their performance (e.g. Hauw and Durand, 2007; Sève et al., 2006). This form of stimulated recall immediately enriches study participants’ cognitive and reflective resources for training and competition (Gilbert and Trudel, 2001). Released from the constraints inherent to the competition situation, athletes can re-experience their activity and explain the grey areas of their performance. For example, table tennis players, as they describe their activity throughout the match during self-confrontation, may find that they have built interpretations about the opponent on the basis of a small number of observations and that these interpretations have led them to ‘lock themselves’ into irrelevant strategies (e.g. Sève et al., 2005). Although they may experience a sense of dissatisfaction at the end of a match, the players are not always able to understand why they persisted in making ineffective strokes. In contrast, during the self-confrontation interview, they may realize that some of the choices they made in the match that they felt were ineffective were, in fact, rather effective. Reliving the whole game and describing it to someone else thus helps them to better understand how they interpret the opponent’s game. Moreover, this process strengthens certain elements of knowledge that they may have started building during the game but were unable to stabilize at that time because of time pressure and the uninterrupted flow of action. In the case of the trampolining studies, the self-confrontation interviews gave the athletes the opportunity to more precisely link certain of their kinaesthetic sensations with decisions they had made about the sequencing of acrobatic moves and motor adjustments. In doing so, they were better able to perceive and understand how certain sensations and perceptions (e.g. the landing zone on the trampoline bed, sensations of speed or alignment) had prompted them to modify the sequence order and the degree of openness in body parts during the various phases of an acrobatic move. This greater understanding was matched by a greater awareness of the most commonly encountered periods of disturbance during performance (e.g. finding the best moment to begin the performance) (Hauw and Durand, 2007).

The second type of support is given over the short term in response to the pressing need for optimized training and optimal performance. This consists of providing a set of procedures for cognitively enriching competitive or training situations (through the equipment and materials used for analysis). The classic procedure is to give feedback to the athlete and coach while the experience is still hot, using the self-confrontation interview with the athlete as the basis. This interview gives the coach access to the interpretations, perceptions, emotions, etc. experienced by the athlete during performance. It also has the advantage of being indexed to a video recording of behaviour, which gives the coach the opportunity to compare his or her own analysis of the performance with the athlete’s experience. The self-confrontation interview is thus likely to provide coaches with a better understanding of performance, as the inner experience of the
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The interview also promotes the construction of consensus in the interpretations of coach (giving expert analysis of performance) and athletes (living the performance from the inside) about performance in concrete situations. Immediate feedback may also serve to elucidate certain training or competition situations with an enigmatic character and can be used to adapt training contents to the specificities of each athlete. By allowing an analysis from-the-inside, self-confrontation interviews help to identify each athlete’s characteristics. Remedial steps are not exclusively defined by comparing what should have been done and what actually was done, but they also take into account experiential data. For example, athletes presenting the same behaviour do not necessarily have the same reasons for doing so: an analysis based on the individual athlete’s experience may distinguish a very personal cause of a behaviour and thus better equip the coach to make an optimal intervention. Other, more complex support procedures can be envisaged, such as, for example, the use of cross self-confrontation (e.g. Clot et al., 2002; Clot and Kostulski, 2011). The objective of this procedure would be to develop a rigorous approach to organizing reflective practices regarding collective activity, but from the point of view of the actors (i.e. self-confrontation interviews). Cross self-confrontation also confronts the athlete with his or her partner’s or coach’s activity in his or her presence. However, in this procedure, the researcher seeks to promote controversy between the players based on the assumption that these points of controversy will allow each actor to develop the power to act. This technique of crossed self-confrontation would be interesting to use to improve both training sessions and performance. For example, it might be used with partners to improve team performance or with an athlete and coach to improve team training.

The third type of support is longer term and has the aim of designing and delivering more elaborated ‘guidance’ or ‘proposals’ to meet mid- and long-term objectives (e.g. Sève et al., 2006), once the entire analysis has been completed. For example, after the rule change in table tennis and given the difficulties encountered by the players, new forms of training were suggested to help develop skills using the resources offered by the new form of counting. Coaches developed new training procedures to develop skills of exploration and deception of the players (Sève and Poizat, 2005).

Future issues in performance analysis: mixed methods

To open a debate and suggest directions for future research in the field of performance analysis, we argue that it would be interesting to articulate our approach, which is focused on activity that is meaningful to the actor, with both biomechanical analysis and notational analysis. There can be tremendous value in combining descriptions from-the-inside and from-the-outside. We assume that the combination of qualitative description of the athlete’s experience and (semi-)quantitative description of objective performance indicators would provide a better understanding of performance. To illustrate the usefulness of mixed methods (e.g. Tashakkori and Teddlie, 1998, 2003; Johnson and Onwuegbuzie, 2004), we will refer to studies in swimming, rowing and basketball. The first two studies were designed to articulate the description of athletes’ experience with biomechanical indicators. The third study crossed a match analysis with the analysis of the experiences of basketball teammates.

Combination of biomechanical analysis and qualitative description of athletes’ experience

An initial study by Gal-Petitfaux et al. (in press) analysed both athletes’ experiences (i.e. from-the-inside) and biomechanical data (i.e. from-the-outside). The objective was to understand the
activity of elite swimmers as they dealt with an underwater device as part of a biomechanical protocol to evaluate performance. Specifically, the authors sought to describe the athletes’ propulsive experiences using the training device to assess its impact on the organization of swimming (Poizat et al., 2010). The biomechanical analysis showed a pad effect in the interactions between the swimmers and the technology: the force applied to each pad by the swimmers was not constant, despite the instructions given for the biomechanical evaluation protocol (the athletes were instructed to swim each lap more quickly than the last but to maintain a constant speed during each lap). The experiential data confirmed this pad effect and provided some possible explanations. Indeed, the analysis of the swimmers’ experiences revealed that the speed constraints had a significant impact on the way they approached the device and caused them to have several concerns (e.g. ‘put their hands on every pad without missing any’, ‘place their hands correctly’, and ‘increase the arm-stroke rate to reach maximum speeds’) and to organize their swim differently (e.g. ‘raise their heads to look at the pads’, ‘press quickly on the first pads with rhythm’, and ‘press hard on the pads in the middle of the pool’). The results also highlighted discrepancies between the biomechanical data and the experiential data. These discrepancies occurred mainly when the swimmers had to use the device at fast speeds. As an example, one swimmer tried to press hard and fast on the first four pads and then maintain a constant speed: ‘I’m not going to increase my speed linearly. I’ll do four pads to start.’ The analysis of the forces exerted by the swimmer’s hands pointed to a discrepancy with this feeling: it revealed that the swimmer exerted strong forces on pads 7, 9, and 10, as well as 14 and 16. Although the swimmer felt the sensation of ‘maintaining a constant speed’ after the first four pads, he did not perceive the sensation of ‘again exerting high forces on the pads’ in the middle and the end of the 25 m swim. Following this study, several design proposals were made so that the device could be included in underwater training sessions. A more ‘training friendly’ device was designed to maintain swimmers’ action organization and reasoning so as not to be at odds with swimmers’ experience in natural conditions.

The second study tried to specify a single salient phenomenon in rowing experienced by a coxless pair crew during a race (Sève et al., in press). The analysis of the athletes’ experience revealed that one of the rowers had the sensation during the race of ‘being pushed’ by her partner and thus felt unable to fully carry out her movements. This phenomenon was particularly interesting for the coaches because, according to the pre-established roles, this rower, as the stroke rower, should have been imposing the stroke rhythm and her partner, as the bow rower, should have been following the rhythm set by the stroke rower. From the coaches’ point of view, the stroke rower’s perception reflected a problem in the coordination of the rowers’ actions. The biomechanical analysis showed that this phenomenon could be explained principally by an amplitude differential between the two rowers. In terms of the richness of empirical detail, the combined analysis of the athletes’ experience and the biomechanical parameters showed characteristics of the rowers’ coordination that were compatible with their perceptions but unsuspected by them and their coaches. The rowers’ describable and personally meaningful experiences were put into relationship with largely unconscious adjustments that could be measured using other methodologies, yielding new insights into certain facets of performance. For example, the stroke rower’s perceptions of ‘not being in synch’, ‘being pushed’ by her partner, and ‘not being able to complete her strokes’ at certain moments of the race were syncretic descriptions of her experience. Although they served to identify and localize a critical incident from her point of view, they were uninformative as to their source. The sensation of ‘being pushed’ by her partner could in fact have been linked to several behavioural adjustments between the rowers that were not only meaningless for them, but also too subtle to be identified by the coaches by direct observation or by viewing the video recordings. When
the biomechanical parameters were mapped to the syncretic perceptions of ‘being pushed’, it emerged that differences in stroke amplitude and the speed in the first and second parts of the recoveries had a notable impact on the global dynamics of the collective activity. This study also indicated another interest of indexing an objective performance analysis to a prior analysis of athletes’ experience. The wide range of objective performance indicators makes it difficult to choose those that are most relevant. An initial analysis of athletes’ experience makes it possible to formulate hypotheses that will guide the choice of the objective parameters relevant to exploring specific performance phenomena.

### Combination of notational analysis and the qualitative description of athlete experience

A third study to articulate descriptions from-the-inside and from-the-outside is currently underway. It differs from the previous two in that it seeks to better understand how the collective performance of a basketball team is built by crossing a match analysis with an analysis of the teammates’ experiences. Several course-of-action studies have been conducted to better understand how basketball teams coordinate (Bourbousson et al., 2010, 2011). These studies have demonstrated, for example, that the coordination network of a basketball team is heterogeneous and based on local interactions that are constantly constructed and deconstructed in relation to the unfolding events of the situation. They also showed that the occurrence of many local coordinations at once do not compromise the viability of the overall team functioning. Such findings led the researchers to turn to the tools and methods of match analysis (e.g. McGarry, 2004) for corroboration. Two studies were conducted to analyse the spatiotemporal coordination of a basketball game in connection with the theory of dynamical systems (e.g. McGarry et al., 1999; Passos et al., 2009). The first study was an analysis of the match (Bourbousson et al., 2010a), while the second focused on player dyads (Bourbousson et al., 2010b). The results showed three types of dyads; those that did not maintain stable spatiotemporal coupling, those that maintained simple spatiotemporal coupling (a single stable interactive behaviour), and those that displayed complex spatiotemporal coupling (two alternating stable interactive behaviours). The results also indicated that, for players whose coordination showed some stability, the analysis was likely to distinguish phases of stability, destabilization, recovery of stability, and transition between two modes of coordination. Tools from dynamical approaches are very interesting in that they are able to pinpoint breaks in the dynamic coordination of certain players or in the dynamic interaction between two teams. A study is in fact currently underway to articulate a match analysis with an analysis of players’ experience so that the data and interpretations resulting from the two methods can be mutually enriched. The tools used in match analysis reveal aspects of performance that athletes are unaware of and that are imperceptible to the researcher and thus indescribable (e.g. Hughes and Franks, 2004). These tools also have the advantage of enabling simple and rapid descriptions of players’ interactive behaviours, even though these descriptions are only spatiotemporal. The results of this type of analysis can then guide the analysis of athletes’ experience. Conversely, the analysis of experience gives ‘experiential meaning’ to match analysis because this last type of analysis provides little evidence about the processes underlying the production of collective behaviour (e.g. McGarry et al., 2002). From this point of view, the analysis of athletes’ experience provides guidance on which type of data should be collected to produce a meaningful description and subsequent understanding of game behaviour (e.g. McGarry, 2009). It also takes into account the context in which the behaviour is being produced, which is often overlooked when only objective data is analysed (e.g. McGarry and Franks, 2003).
Concluding remarks

To conclude, mixed methods are relevant in the field of performance analysis as a means to access phenomena that might be overlooked by a single analytic approach. Mixed methods are also able to provide interesting results for coaches and athletes, especially when problems or dysfunctions occur that cannot be clearly identified, as, for example, in the study of the two rowers.

References


