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## **Athletes' use of goal-directed self-talk: Situational determinants and functions**

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The purpose of this study was to explore situational determinants of goal-directed self-talk and to advance our understanding of athletes' goal-directed self-talk functions. Participants were 97 young adult athletes ( $M_{\text{age}} = 20.36$ ;  $SD = 3.38$ ), competing at regional, national, and international level. In face-to-face meetings, participants were guided to describe situations in which they had used goal-directed self-talk. Subsequently, they were asked to report what their goal-directed self-talk in these situations had been. Both inductive and deductive data analyses were used to address the research questions. Regarding the situations, participants used goal-directed self-talk mainly in a variety of situations in training, and before, during and after competition. Furthermore, they also employed self-talk to better handle substitutions, injuries and interpersonal conflicts. Regarding self-talk functions, the initial coding scheme was expanded with additional categories to add depth and specificity to the model. Specifically, newly described self-talk functions relate to performance analyses, goal-orientation promotion, reasons underlying persistence, time perceptions and down-regulation of excessive confidence. Overall, the findings of this study suggest that athletes have different self-talk functions at their disposal, to manage a large variety of situations.

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“I used different types of sayings before the race. I made myself get up for it and told myself that I could improve, but I also made myself aware of what I had to do and told myself that I had done it before. I suppose it helped me get motivated and kept me focused and confident about what I was going to do in the next twenty minutes or so (Thelwell & Greenlees, 2003, p. 333).” Similar to this endurance athlete, who reflected upon self-talk use before a competitive event, we have all experience with our inner voice talking to us, thus, helping to self-regulate and to increase performance. Furthermore, as illustrated in the previous quote, self-talk occurs in the context of a specific task or situation. Therefore, the study of self-talk can be seen as an inquiry into our organic and rational navigation system, which guides us through countless life situations.

Self-talk takes form in verbalizations addressed to the self, overtly or covertly, characterized by interpretative elements associated to their content; and it either (a) reflects dynamic interplays between organic, spontaneous and goal-directed, cognitive processes or (b) conveys messages to activate responses through the use of predetermined cues developed strategically, to achieve performance-related outcomes (Latinjak, Hatzigeorgiadis, Comoutos, & Hardy, 2019). The current study is framed within the line of research on goal-directed self-talk in sports. Within self-talk, goal-directed self-talk is an expression of a controlled mental process deliberately employed towards solving a problem or making progress on a task (Christoff, Gordon, & Smith, 2011; Latinjak, Zourbanos, López-Ros, & Hatzigeorgiadis, 2014).

The number of researches on goal-directed self-talk in sport has slowly grown in the past twenty years having, therewith, significantly advanced our knowledge concerning its situational determinants and functions (e.g., Hardy, Gammage, & Hall, 2001). In light of wide-reaching behavioural, motivational, affectual and cognitive consequences of self-talk (see, Hardy, Oliver, & Tod, 2009), researchers have repeatedly requested a greater understanding of the factors that shape athletes' self-talk (e.g., Conroy & Metzler, 2004, Theodorakis, Hatzigeorgiadis, & Zourbanos, 2012). Amongst the different antecedents of self-talk, Hardy et al. (2009) distinguished personal factors from situational determinants, and Zourbanos, Hatzigeorgiadis, Tsikaras, Chroni and Theodorakis (2010) further added a third category of social-environmental factors. In this study, we focused on the situational determinants of goal-

directed self-talk. In the existing literature, it has been evidenced that athletes use goal-directed self-talk more often before and during competition and practice than after (Hardy et al., 2001). During competition, successful and unsuccessful executions (Latinjak, Masó, & Comoutos, 2018; Zourbanos et al., 2015) and the levels of uncertainty regarding goal-attainment (Latinjak, 2018) can also play significant roles in athletes' goal-directed self-talk. Similarly, athletes' emotional experiences influence the amount and functions of goal-directed self-talk. For example, more goal-directed self-talk was observed in the anxiety-eliciting situations than in the anger-eliciting ones (Latinjak, Hatzigeorgiadis, & Zourbanos, 2017). It was suggested that anxiety is often associated to appraisals of one's weaknesses, whereas anger is associated with appraisals of others' prejudicial and offending behaviour. Consequently, goal-directed self-talk can more easily target one's weaknesses in anxiety-eliciting situations than others discriminatory behaviour in anger-eliciting situations.

Several studies addressed the functions of athletes' self-talk. However, it is worth noticing that this line of research has not been confined to goal-directed self-talk. A plethora of experimental studies on strategic self-talk have inquired into the mechanisms underlying the effects of repeating predetermined cue words or phrases on sport performance (for a review see, Galanis, Hatzigeorgiadis, Zourbanos, & Theodorakis, 2016). Regarding functions of goal-directed self-talk, previous research has evidenced both points of agreement and inconsistency. In a nutshell, researchers agree on two broad, main goal-directed self-talk functions: motivational or affective and instructional or cognitive (Hardy, 2006; Hardy et al., 2009; Hatzigeorgiadis & Galanis, 2017; Latinjak, Ramis, & Torregrossa, 2017; Theodorakis, Weinberg, Natsis, Douma, & Kazakas, 2000; Zourbanos, Hatzigeorgiadis, Chroni, Theodorakis, & Papaioannou, 2009). The popularity of this succinct and elegant two-functional representation of self-talk stands in contrast to the inconsistencies between authors who proposed multicategory structures of self-talk functions.

Contemplate, as an example for a larger structure, the Self-talk Use Questionnaire (SUQ) which builds upon 12 functions, including psyching up, relaxing, coping or skill enhancement (Hardy, Hall, & Hardy, 2005). To appreciate inconsistencies between authors who proposed larger structures of self-talk, compare the SUQ to the Functions of Self-talk Questionnaire (FSTQ), which assesses only five self-talk functions: focusing attention, increasing confidence, regulating effort, controlling cognitive and emotional reactions, and fostering automatic executions

(Theodorakis, Hatzigeorgiadis, & Chroni, 2008). From our perspective, the inconsistencies between studies on self-talk functions are no limitation, per se. On the contrary, they are enriching as they reflect the expectable differences in personal points of views between different researchers (e.g., Tracy, 2010).

A relative shortcoming, we do believe to recognize within the self-talk function literature is that no group of researchers has pursued this line of research for more than one or two studies (e.g., Gammage, Hardy, & Hall, 2001; and Hardy et al., 2001), with the exception of one group (Latinjak, 2018; Latinjak et al., 2014, Latinjak, Masó et al., 2018; Latinjak, Hatzigeorgiadis et al., 2017). We identify goal-directed self-talk as a rational thought processes, and, consequently, as a form of an intangible mental construction (Latinjak, Hatzigeorgiadis et al., 2019). Along these lines, we adhere to a relativist ontology that is underpinned by a belief that reality is multiple and subjective (Denzin & Lincoln, 2005). Hence, it is understandable that different groups of researchers come up with different representations of goal-directed self-talk functions. In addition, the results from the studies on goal-directed self-talk functions derive from qualitative data, and, therefore, the analytical generalisation in those studies should be understood as a fluid idea in the form of a data-driven conceptual construction (Atkinson, 2017). As such, studies in this line of inquiry require a series of replications, collecting data from different populations and in different contexts, to allow for a more comprehensively constructed idea of goal-directed self-talk functions.

In contrast to most proposed schemes of goal-directed self-talk functions, one model (i.e., Latinjak et al., 2014) has been developed through multiple studies representing, thus, a more comprehensively constructed idea of the aims to which athlete use goal-directed self-talk. Without disagreeing with the idea of cognitive and motivational aims of goal-directed self-talk (e.g., Zervas, Stavrou, & Psychountaki, 2007), this model considers a variety of cognitive (cognitive restructuring and cognitive and behavioral control) and motivational (up and down regulation of arousal and confidence) functions. Since goal-directed self-talk is a key element of many behaviour-change techniques (Michie et al., 2013), including Rational-Emotive Behaviour Therapy (Turner & Barker, 2014) and Cognitive-Behaviour Interventions (Neil, Hanton, & Mellalieu, 2013), a more detailed understanding of its' functions would inform the systematic development and evaluation of behaviour change interventions in sport (Michie et al., 2016).

Within this group of studies, initial data (i.e., self-talk sampled in emotion-eliciting situations; Latinjak et al., 2014) led to a first proposal which has initially been endorsed with different samples (Latinjak et al., 2017). Nonetheless, the scheme of self-talk functions still requires further adjustment, as self-talk needs to be studied in different conditions (e.g., Latinjak, Torregrossa, Comoutos, Hernando-Gimeno, & Ramis, 2019). For instance, Latinjak, Masó et al. (2018) analyzed self-talk used during technical skill acquisition. The need for further fine tuning of the initial proposal became apparent, as this latter study has shown that the original approach was still too general to capture specific differences in athletes' self-talk. Modifications to the original model were required to appreciate subtle nuances within the data. To illustrate, after unsuccessful frisbee passes, athletes used self-talk aimed at error descriptions (e.g., my wrist had bent) and negative feedback (e.g., you failed) to improve their performance in following attempts. Both statements would have been classified as cognition- and behaviour-regulating self-talk, according to the original goal-directed self-talk model (Latinjak et al., 2014). Hence, once coded, the differences between both statements would not have been appreciated. To date, the scheme of self-talk functions remains incomplete, and future studies analysing self-talk used in a variety of situations are needed to advance towards a comprehensive self-talk functions scheme that may inform the systematic development and evaluation of behaviour change interventions in sport, in which goal-directed self-talk is an essential mechanism of change.

**The present study.** The present study pursued two specific goals. First, to explore the situational determinants of goal-directed self-talk. In previous studies, gestures, performance progress, and emotion-eliciting situations have been identified as situational determinants of goal-directed self-talk (Latinjak, 2018; Latinjak et al., 2017; Van Raalte, Brewer, Rivera, & Petitpas, 1994; Zourbanos et al., 2015). However, in these studies the situational determinants were identified a-priori and assessed. For instance, in Latinjak et al. (2017), anger and anxiety were identified a-priori as determinants of self-talk. Consequently, athletes were asked about their self-talk in anger- and anxiety-eliciting situations and the results verified that both emotions elicit different self-talk patterns. In the present study, attempting to more widely explore potential situational antecedents, athletes' experiences were addressed through an open-ended question. Subsequently, an inductive approach was used to explore and organize a large variety of situations in which goal-directed self-talk is being used.

Second, as we expected athletes to recall their goal-directed self-talk in a wide variety of situations, we aimed to add to the process of constructing a comprehensive scheme of goal-directed self-talk functions. According to recent experiences (Latinjak, Masó et al., 2018), the existing categories of goal-directed self-talk functions may be insensitive to relevant nuances in self-talk functions in specific situations, such as acquiring a new skill, feeling tired or waiting for a game to start. Consequently, in this study, deductive and inductive approaches to data analysis were used. First, the previously established and confirmed scheme of goal-directed self-talk functions was taken as a starting point, using deductive analyses. Second, inductive analyses were deemed useful to expand on the previous framework where different meanings are identified within the same category.

## Method

### Research design

In accordance with previous studies on athletes' use of goal-directed self-talk in sports (e.g., Hardy et al., 2001), we used a descriptive qualitative research design. The use of self-reports in this study was justified because such procedures provide access to cognitive activation and metacognitive knowledge that cannot be obtained through other methods (Guerrero, 2005). Distant recall procedures had already allowed participants, in past studies, to reflect on a broad diversity of scenarios in which they have used self-talk (Gammage et al., 2001; Hardy et al., 2001; Latinjak et al., 2014). Subsequent studies using concurrent thought-sampling strategies (Latinjak, 2018) and immediate-recall protocols (Latinjak, Masó et al., 2018) had confirmed the findings obtained through distant recall procedures, thus further endorsing this self-talk-sampling protocol. Lastly, a written thought-listing strategy commonly used in self-talk research (e.g., Van Raalte, Morrey, Cornelius, & Brewer, 2015; Zourbanos et al., 2009) was chosen. Writing down self-statements has proven effective in isolating self-verbalizations from other cognitive products such as preverbal thoughts or images.

### Participants

Participants were 97 university-student athletes, aged between 18 and 36 years, from local sport and health science faculties (59 males;  $M_{\text{age}} = 20.36$ ;  $SD = 3.38$ ). At the time of the data collection, they were actively engaged in sports such as soccer ( $n = 30$ ), basketball ( $n = 24$ ), athletics ( $n = 21$ ), tennis ( $n = 13$ ) and handball ( $n = 9$ ), at regional ( $n$

= 60), national ( $n = 32$ ) and international levels ( $n=5$ ). They practiced sport for an average of 7.86 hours per week ( $SD = 4.95$ ).

### **Procedure**

The study was approved by the Ethics Committee of the first author's institution. Contact with the athletes was established in the facilities of their faculties. A research assistant, who was previously trained in practice trials, organized a face-to-face meeting with those athletes interested in participating. In these meetings, each participant was presented a series of questions (see Instrument section) on a tablet, which he or she completed in the presence of the research assistant. Before answering, each participant signed the informed consent form and filled out a short questionnaire regarding demographic data (i.e., gender, age, sport type, competitive level and practice per week). Completion time ranged between 25 and 40 minutes. During this time, the research assistant was present to answer any question. The research assistant was situated in a position from which he was unable to see what the participants were writing.

### **Instrument**

The instrument contained seven repetitions of two consecutive questions. In Question 1, participants were asked to reflect upon a situation that had occurred in their sport during the last month in which they talked to themselves to solve a problem or progress on a task. They were asked to use at least 200 characters to describe the situation, and to be specific enough to enable the researchers to imagine that situation. In Question 2, the participants were asked to write up to four self-instructions they would typically use in that situation. This thought-sampling procedure has been used in previous studies on goal-directed self-talk (Latinjak et al., 2014; Latinjak et al., 2017).

### **Data Analyses**

Data analysis was structured in two parts: coding of situations in which self-talk had occurred (inductive analyses), and coding of the functions of athletes' goal-directed self-talk (mixed deductive and inductive analyses). Coding of the situations consisted of two consecutive tasks. In Task 1, all situations described by the participants were read by the first and second author, who independently proposed possible coding schemes for situational determinants, and then engaged in constructive discussion until agreement was reached. In Task 2, the research assistant categorized all the situations. To calculate coding reliability ( $[\text{number of agreements} / \text{number of themes}] * 100$ ), the

first author coded a random sample of 25% of all situations. Afterwards, the authors and the research assistant convened to discuss differences in their ratings until complete agreement was reached.

To analyze the functions of self-talk, the first and second author coded independently all self-instructions in a coding scheme, following the guidelines offered in Latinjak et al. (2014): first, they identified different meaning units in each answer; and second, all text units were codified in one of the seven primary categories of goal-directed self-talk. An additional category was prepared for meaning units which were not goal-directed. Amongst the meaning units which are not goal-directed, one would expect to find spontaneous self-talk and task-independent statements (see for detailed descriptions, Christoff et al., 2011). With regard to inter-rater agreement, limitations of this method to guarantee rigor in qualitative research have to be acknowledged (Smith & McGannon, 2017). The isolated coding of the raters and the subsequent calculation of the inter-rater agreement was mainly performed to elicit discussions between the authors regarding the categories and their descriptors. For this reason, at any step of the analysis, the two analysts convened to discuss about differences in their answers until either agreement was reached or limitations of the coding scheme were noted down. Subsequently, these annotations were reexamined by the analysts to propose modifications to the initial coding scheme.

Most points of discussion were based on the two analysts identifying different meanings within the same category. Therefore, further subcategories were proposed and discussed until agreement was reached. At this stage the third author acted as a critical friend. In agreement with Cowan and Taylor (2016), the role of critical friends was to encourage reflections upon, and exploration of, multiple and alternative explanations and interpretations of the data sampled in this study. Once the comments of the critical friend were taken into account in the scheme, the first and second author categorized text units into their respective subcategories.

With the final coding scheme in hand, a group of athletes, coaches and sport-science students were contacted to comment to help the authors elaborate a representation of the goal-directed self-talk functions which is comprehensible for the target population. The main contribution of the discussion group was to replace the traditional hierarchical tree (see Table S1, offered as an online supplement) with a graphical representation of the main findings of this study (see, Figure 1). To that end, the athletes, coaches and sport-science students' comments regarding form and wording

were taken into account. Such meaningful representations were recommended to add rigor in qualitative research (Tracy, 2010), because they help disseminating research findings. To offer additional details on each category, and to add transparency to the data analysis, in Table S1, descriptors for each category were added. Lastly, because the elaboration of the final report is part of the analysis in qualitative research (Sparkes & Smith, 2014), a second critical friend, expert in sport self-talk, was contacted to critically comment of the manuscript.

#### *Establishing confidence*

Regarding the list of universal criteria for rigor in qualitative research (Tracy, 2010), in the present study a relativist approach was adopted (Sparkes & Smith, 2014). That is, “criteria for judging the quality of qualitative research are drawn from an ongoing list of characterizing traits as opposed to being applied in a universal manner to all qualitative research (p. 4188, Smith & Caddick, 2015).” In the present study, the following criteria were included: the worthiness of the topic; the significant contribution of the work; the resonance, that is, the efforts made to represent the findings in this study in a way both comprehensible and significant to the target population (see, Figure 1); and the meaningful coherence of the research, indicating how well the study interlinks in terms of the aim, method, and results.

Furthermore, to further enhance the quality of this study, multiple voices were included in the analysis, to allow for different facets of problems to be explored to deepen our understanding on goal-directed self-talk functions. In addition to the first and second author, the research assistants and the participants of the discussion group, two critical friends commented on the coding scheme and the final draft of the manuscript.

### **Results**

In this section the situations in which athletes used self-talk and the function of their self-talk are described. Furthermore, in Table S2, offered as online supplement, the distribution of self-talk functions across situations can be inspected. In Table S2, for instance, we observe that self-talk aimed at creating low arousal states is used more often in competition than training, or that the frequency of future-oriented self-talk decreases from before to during and after competition. Yet, with regard to the interpretation of Table S2, it should be kept in mind that absolute frequencies of text

units and percentages do not indicate the importance of any category (Sparkes & Smith, 2014).

Table 1

*Categorization Scheme and Frequencies of Sport Situations in which Goal-directed Self-talk is used*

Situations and situational determinants ( <i>n</i> )	Example (parts of original transcripts)
<b>Context</b>	
1.1. Training (72)	“Last Mondays training...”
1.2. Competition (534)	“...during the race...”
1.3. Both (24)	
1.4. Not specified (36)	
1.2.0.1. Demanding game (69)	“...it was the most important game of the season...”
1.2.0.2. Undemanding game (16)	“The season was already over and I had to play this stupid game...”
1.2.0.3. Not specified (449)	
1.2.1. Before Competition (66)	“...I was sitting in the changing room waiting for the game to start...”
1.2.2. During Competition (404)	“...as I ran for the ball...”
1.2.2.1. While winning (22)	“...we were way ahead of any other team...”
1.2.2.2. While drawing (36)	“...it was 86 all and just five minutes left to play...”
1.2.2.3. While losing (54)	“...they had just scored the goal that put them in front...”
1.2.2.4. Various (2)	
1.2.2.5. Not specified (290)	
1.2.3. After Competition (47)	“... as soon as the referee marked the end of the game...”
1.2.3.1. Won the competition (19)	“We had just won the national championship...”
1.2.3.2. Lost the competition (18)	“...now it is too late and everything is over for us...”
1.2.3.3. Both (2)	
1.2.3.4. Not specified (8)	
1.2.4. Various (8)	
1.2.5. Not specified (9)	
<b>Performance analyses</b>	
2.1. After successful action(s) (54)	“...I hit this incredible shot to win the point...”
2.2. After unsuccessful action(s) (149)	“I had been making mistakes all day...”
2.3. Not specified (463)	
<b>Miscellaneous situations</b>	
3.1.1. Fatigue (27)	“...I was really tired and my legs felt heavy...”
3.1.2. Injury (10)	“Just when I felt the pain and I knew that it was important...”
3.2.1. Being substituted (9)	“...and then I had to leave the field just when I felt at my best...”
3.2.2. Entering as a substitute (4)	“...after the coach called me to warm up and to substitute the captain.”
3.2.3. Remain on bench (10)	“...I thought I would play, but he told me that today I wouldn’t...”
3.3. Decision from the referee (16)	“...it was a major mistake to call back that goal...”
3.4. Confrontations (18)	“...he came for me and I had to defend myself...”

### Situations in which goal-directed self-talk was used

The participants described a total of 679 situations. Answers ranged between 18 and 1719 characters ( $M = 288.49$ ,  $SD = 200.57$ ). Only 13% of answers were below the required 200 characters, whereas 87% of answers contained 200 characters or more. Hence, we could conclude that many participants engaged with the task far beyond the minimum effort we required from them.

Nonetheless, 13 situations did not refer to self-talk in sport situation as required, but to self-talk about sport yet outside sport situations (e.g., while driving) and were consequently discarded. Therefore, a total of 666 situations were analyzed. As for the coding scheme, most situations were initially coded regarding practice, competition and performance self-evaluations. Interestingly, besides these primary categories, other descriptors were also considered (e.g., physical sensations). For an overview and examples of the different sport situations in which goal-directed self-talk is used, see Table 1. Inter-rater agreement ranged between 87% and 97% for each category.

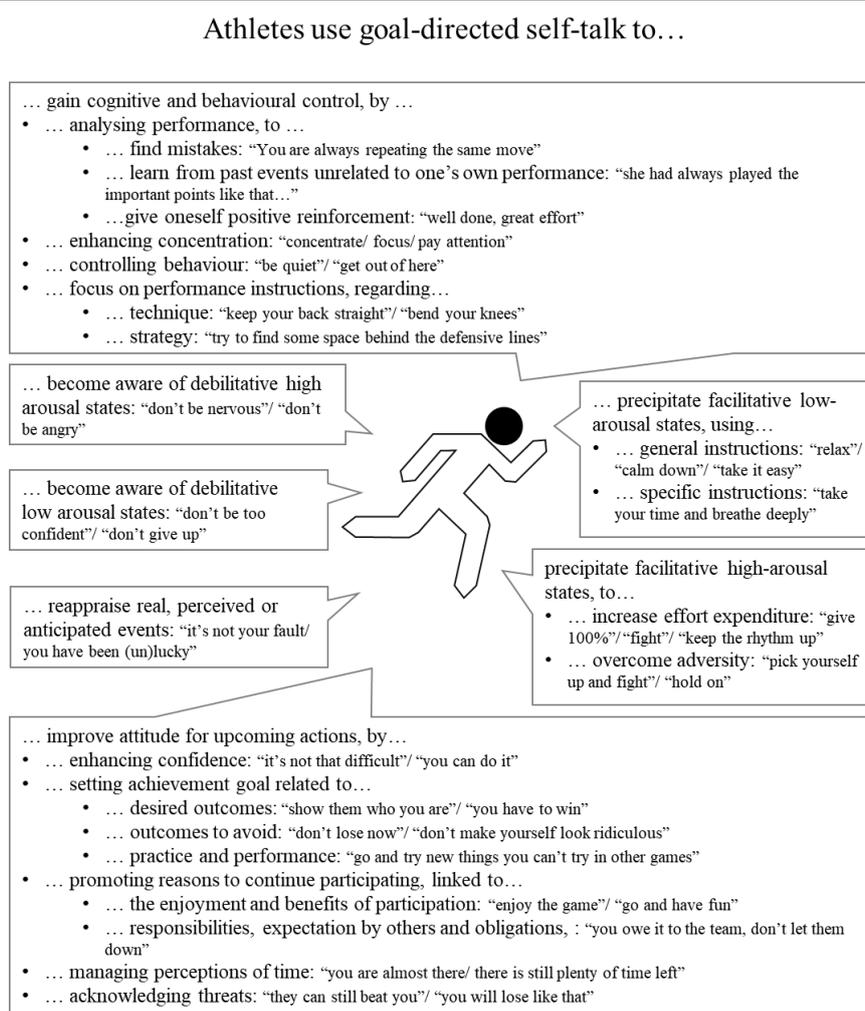
Regarding practice, competition and performance self-evaluations, self-talk may be elicited by *competition* (534; 80%) and *training* (72; 11%). More specifically, self-talk is elicited by competitions perceived as both *demanding* (69; 10%) and *undemanding* (16; 2%). Moreover, self-talk may help athletes to self-regulate *prior to the competition* (66; 10%), *during the competition* (404; 61%), and *after the competition* (47; 7%). During the competition, self-talk responds to challenges posed by *winning* (22; 3%), *drawing* (36; 5%), and *losing* (54; 8%). After the competition, self-talk also aids athletes to cope with *victory* (19; 3%) and *defeat* (18; 3%). Regarding performance evaluations, in both competition and training, self-talk is used after both *successful actions* (54; 8%) and *unsuccessful actions* (149; 22%).

Beyond practice, competition and performance self-evaluations, self-talk was also used to cope with the demands placed by (a) physical sensations, including *fatigue* (29; 4%) and *injury* (10; 2%), (b) playing status, including *leaving the pitch after substitutions* (9; 1%), *entering the pitch* from the bench (4; 1%), and *remaining on the bench* (10; 2%), (c) *referee decisions* (16; 2%), and (d) *confrontation* with teammates, opponents and the coach (29; 4%).

### **The Functions of Goal-Directed Self-Talk**

An overview and examples of goal-directed self-talk functions is offered in Figure 1. To offer details on each category, and to add transparency to the data analysis, Table S1 is provided as an online supplement, with definitions of all primary, secondary and tertiary categories. Regarding the deductive analysis, using the original seven categories of goal-directed self-talk functions, the authors concluded that all meaning units could adequately be placed within this coding scheme. Thus, the seven categories were required and sufficient to allocate all text units. Nonetheless, it is noteworthy that the distribution of text units across the seven categories was not homogeneous. Most

goal-directed self-talk as future-oriented (e.g., “you’ll be fine”;  $n = 868$ ) and aimed at regulating cognition and behavior (e.g., “focus on the task”  $n = 793$ ). With regard to arousal, there were significant amounts of self-talk creating high-arousal states (e.g., “be strong”;  $n = 343$ ) and creating low-arousal states (e.g., “calm down”;  $n = 252$ ). Observations of self-talk targeting reappraisal (e.g., “it’s just a mistake”  $n = 146$ ), control of high-arousal states (e.g., “don’t get mad”;  $n = 118$ ) and control of low-arousal states (e.g., “don’t be sad”;  $n = 80$ ) were the least frequent. Inter-rater agreement for each primary category ranged between 81% and 89%.



**Figure 1.** A graphical representation of goal-directed self-talk functions in sports

Despite the authors’ agreement on the adequacy of the seven-original goal-directed self-talk functions, some of these categories were evaluated as too broad, and, consequently, text units with different meaning were grouped in the same category. As a result, secondary categories were proposed. The subcategorization was required for the four categories with the largest count of text units (inter-rater agreement for each secondary and tertiary category ranged between 85% and 98%). However, additional

categories might also be required for the remaining three categories. In future studies, when larger numbers of text units evidence greater divergence in the meaning within these categories, clear substructures may emerge and merit description.

Regarding the future-oriented self-talk, distinctions could be made between self-talk aimed at *confidence boosting* (e.g., “you’re better than her”;  $n = 549$ ), *down-regulating confidence* (e.g., “you’re not that much better”;  $n = 29$ ), *time management* (e.g., “you have still some time left”;  $n = 67$ ), *goal-orientation* (e.g., “try to learn something here”;  $n = 117$ ) and *engagement* (e.g., “think about the reasons why you are here”;  $n = 105$ ). In addition to these secondary categories, future-oriented self-talk subcategorized as goal-orientation and engagement required further subcategorization to make sense of incompatible meaning units. Adopting the vocabulary used in relevant goal and motivation theories in sport and exercise psychology (i.e., Needs Achievement Theory, Nicholls, 1989; Self-determination Theory, Deci & Ryan, 2000), self-talk could be aimed at goal-orientation could specifically promote *performance approach* (e.g., “show them what you can do”;  $n = 65$ ), *performance avoidance* (e.g., “don’t fail now”;  $n = 9$ ), and *mastery approach* (e.g., “this is your time to work on your skills”;  $n = 43$ ). Self-talk aimed at engagement could specifically reflect *intrinsic regulations* (e.g., “enjoy yourself while playing”;  $n = 31$ ), or *extrinsic regulations* (e.g., “don’t let your team down”;  $n = 56$ ).

Regarding self-talk aimed at regulating cognition and behavior, distinctions were made between self-talk aimed at *performance analysis* (e.g., “why does it not work today”;  $n = 193$ ) *concentration control* (e.g., “focus”;  $n = 217$ ), *behavioral control* (e.g., “be quiet”;  $n = 87$ ), and *performance instructions* (e.g., “don’t drop you elbow”;  $n = 296$ ). With regard to performance analysis, three different tertiary categories were required to make sense of the data: *error analyses* (e.g., “you waited too long”;  $n = 109$ ), *independent analyses* (e.g., “she is not very fast”;  $n = 27$ ), and *positive feedback* (e.g., “very well done”;  $n = 57$ ). As to performance instructions, these can refer to *technique* (e.g., “with the inner foot”;  $n = 95$ ); and to *strategy* (e.g., “wait till there is a gap”;  $n = 201$ ).

Finally, self-talk aimed at creating high-arousal states mostly referred to *effort expenditure* (e.g., “all you got”;  $n = 308$ ), but also prompted the athlete to *overcome adversity* (e.g., “keep going”;  $n = 35$ ). Moreover, self-talk aimed at creating low-arousal states was usually formulated as *general deactivation instructions* (e.g., “relax”;  $n =$

198), but at times they also contained *specific deactivation instructions* (e.g., “breath slowly”;  $n = 54$ ).

### Discussion

In this study, the situations in which goal-directed self-talk was used and its functions were examined. The results indicate that athletes use goal-directed self-talk to respond to challenges elicited by a wide variety of situations, mainly, but not exclusively, related to practice, competition and performance self-evaluations. Goal-directed self-talk also serves a wide variety of functions. These functions promote functional, psychological processes such as focus of attention, arousal control, motivation and confidence. As expected, the self-talk the participants described for large variety of situations, was evidence that has allowed us to broaden the working scheme of self-talk functions. Although, the seven original goal-directed self-talk functions (Latinjak et al., 2014) worked well as a point of departure, they were not sufficient to reflect the diversity of self-talk functions contained within our data.

#### **Situational Determinants of Athletes’ Goal-directed Self-Talk**

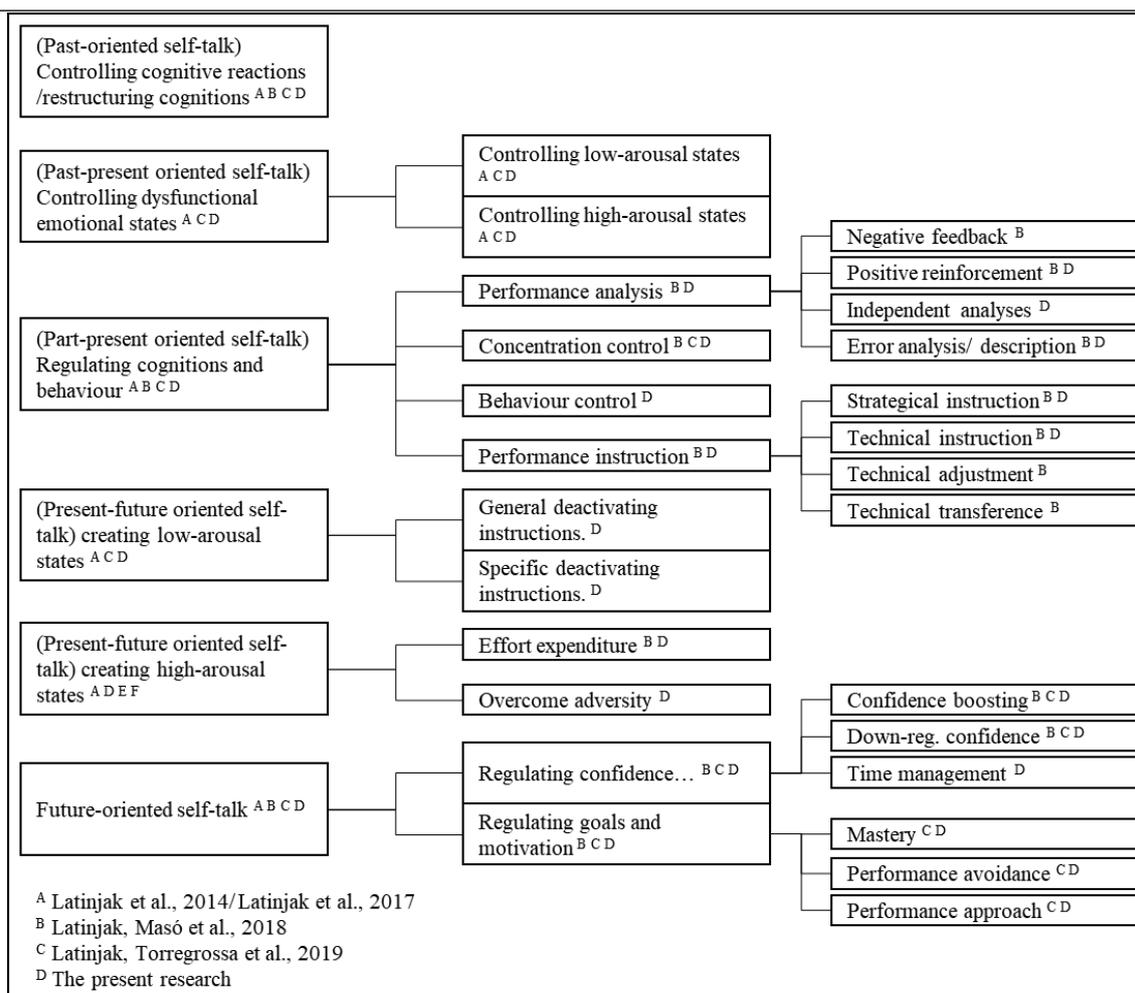
Athletes’ goal-directed self-talk occurred in diverse sports contexts, grouped in terms of practice, competition and performance self-evaluations. Previous findings (Hardy et al., 2001) have shown that self-talk is more frequent in competition than training, yet such quantitative assumptions cannot be confirmed through our qualitative and descriptive data. In regard to specific situational determinants within competitions, the participants frequently described unsuccessful performance, states of losing and defeat, and, less frequently, successful performance, winning and victory. To date, very few studies on goal-directed self-talk have focused on performance as a situational determinant of self-talk (Hatzigeorgiadis, & Biddle, 2008). Stemming from Van Raalte’s observational studies in tennis (Van Raalte et al., 1994; Van Raalte, Cornelius, Brewer, & Hatton, 2000), Hardy et al. (2009) listed match circumstances as one of several situational determinants of self-talk. These studies showed that winning or losing, the match or a specific point, can engender either positive or negative self-talk. Recently, Zourbanos et al. (2015) have continued research on observable self-talk employing sequential analyses. Unfortunately, less attention has been paid in their study to performance as a situational determinant of goal-directed self-talk, yet their line of research seems promising from a methodological point of view, since sequential

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analyses might allow us to establish relationships between specific outcomes and types of goal-directed self-talk.

Interestingly, situations other than practice, competition and performance self-evaluations have also emerged from the participants' responses. Fatigue and injury are two situations, related to psychophysiological states, which may require goal-directed self-talk for self-regulation purposes and that have received little attention in the self-talk literature. Whereas general cognitive reactions to both fatigue and injury have recurrently been examined scientifically (e.g., Garcia, Razon, Hristovski, Balagué, & Tennenbaum, 2015; Huysmans & Clement, 2017), no previous study has specifically addressed how athletes use self-talk to cope with these situations. Yet, in relation to tasks eliciting fatigue, a series of experimental studies on the effects of motivational self-talk have shown self-talk to increase resistance (e.g., Wallace et al., 2017) and, most importantly, decrease rates of perceived exertion (Blanchfield, Hardy, de Morree, Staiano, & Marcora, 2014). Understanding ways in which self-talk can help athletes to cope with pain and injury may lay foundations for effective cognitive-behavioral interventions in physically demanding sports such as resistance or strength sports (Latinjak, de las Heras et al., 2018).

Furthermore, two situations that reflect social conflicts also emerged from the participants' responses: referee decisions and confrontations with teammates and peers. Self-talk in such situations has not yet been studied. In these situations, self-talk may serve as a rational counterpart to the emotionally-driven response to a perceived offence from others. Since this is new to sport self-talk research, we referred to studies about non-sport self-talk, that focus on how self-talk allows individuals to adopt the perspectives of others in their inner dialogue and to merge these different points of view to solve social problems (Morin, 1993, 2005). Similarly, Siegrist (1995) considers self-talk to be important for public self-consciousness, that is, awareness of having an impact socially upon others. Furthermore, diverse other psychotherapeutic approaches (Rational Emotive Therapy, Ellis, 1976; Cognitive Behavior Modification; Meichenbaum, 1977) previously applied effectively to sport behavior (Turner, Slater, & Barker, 2014) serve as indirect support for the efficacy of goal-directed self-talk to regulate interpersonal behavior in emotionally charged sport situations. To consider self-talk as a key to effective conflict resolution may help sport psychologist's counselling athletes who see themselves forced to deal with conflict unilaterally (e.g., when a coach is not open for dialogue).



**Figure 2.** An integrative representation of findings from different studies on goal-directed self-talk functions in sports

### The aims of goal-directed self-talk

This study helped us to advance from the seven original goal-directed self-talk functions (Latinjak et al., 2014) towards a more comprehensive scheme of self-talk functions (see for a integrative scheme of self-talk functions, Figure 2). The addition of subcategories initially indicates that part of the relevance of goal-directed self-talk lies within its functional diversity. Yet, the subcategorization suggests that the different aims of goal-directed self-talk reflected in the primary categories, may be achieved in several ways. In accordance with previous research, cognitive and behavioral control over oneself may be obtained by general increase in concentration (Landin & Hebert, 1999), or by means of performance analysis and tactical/ technical planning (e.g., Latinjak, Torregrossa, & Renom, 2011). Along these lines, self-talk may also help the athlete prepare for upcoming participations or actions by enhancing or down-regulating confidence and promoting goals and engagement. The confidence function of self-talk is well supported in self-talk literature (Theodorakis et al., 2008; Zourbanos et al., 2009),

and Hardy et al. (2005) had already discussed the goal and motivation functions of self-talk.

In contrast, evidence of athletes using self-talk to down-regulate confidence is relatively new in sport self-talk literature. Though, it illustrates why goal-directed self-talk ought to be classified, as suggested by Latinjak et al (2014), in terms of functionality (facilitative/ debilitating) instead of valence (positive/negative). The valence of goal-directed statements such as *You can lose this game* may be relatively irrelevant compared to the degree in which the statement helps the athlete to identify unfavorable situations in the environment and engage in preventative or problem-solving related action. In past research, negative self-talk content had already been shown to have a performance-enhancing potential. For example, athletes reported their negative self-talk to have a motivational role (Hardy, Hall & Alexander, 2001). Moreover, Latinjak, Masó et al. (2018) found athletes consciously using self-talk aimed at negative feedback (you've done wrong) and error description (too strong) to improve technical performance.

Circling back to the applied purpose of this study, the identification of secondary and tertiary categories helps us draw a more comprehensive picture of self-talk functions. A more complete map of self-talk functions can have important implications for applied practice, as a thorough description of self-talk functions forward our understanding on goal-directed self-talk, which lies as the heart of many cognitive-behaviour interventions. For instance, the results of this study suggest that sport goals (e.g., performance-avoidance goals) are under ongoing negotiation through self-talk. Reflexive self-talk interventions (Latinjak, Hatzigeorgiadis et al., 2019), that help athletes question their goal-directed self-talk, may be a mean to support athletes in renegotiating debilitating performance-avoidance goals and replacing them for more functional mastery- or performance-approach goals.

At this point, it would be timely to offer a specific suggestion for applied practitioners, based on the current findings. We suggest encouraging athletes to reflect periodically on psychologically challenging situations, in training and competition, and on the goal-directed self-talk used to master those situations. Furthermore, alternative self-statements can be mentally explored, by asking athletes what else they could say to solve the same challenges. Because athletes struggle frequently to abandon learned self-talk patterns (Latinjak, Hatzigeorgiadis et al., 2019), Figure 1 can be used to inspire athletes to explore different self-talk perspectives. This applied habit can lead to greater

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flexibility in goal-directed self-talk and enhanced metacognitive knowledge and skills (Latinjak, de las Heras et al., 2018).

### **Limitations**

Several features in this study need to be acknowledged as they reflect potential limitations. First, regarding the situation-sampling method, no restricting instructions were provided: participants were simply asked to remember any situation in which they used goal-directed self-talk, instead of specific situations, characterized by better or worse performance, social conflicts, or affective and physical sensations. Consequently, the frequency of the situations could reflect more a state of memory than the actual proportion in the use of goal-directed self-talk. For example, competition could be interpreted as more relevant than training, and therefore, it would be easily recalled, whereas training would be easily forgotten. Nevertheless, endorsing the situation-sampling method, it would appear from the volume of data that instruction ambiguity, as intended, allowed participants to recall their self-talk in different sport situations.

Second, the self-talk-sampling protocol may have introduced memory biased reports of self-talk. As time elapsed since the actual situations took place, the participants might have changed the way in which they appraised the events and their thoughts. Also, according to Zourbanos et al. (2010), with regards to the assessment of self-talk, verbal reports are associated with cognitive processes that sometimes may be beyond meta-conscious control and, thus, cannot be described by the individuals, may be forgotten, or recalled inaccurately (Nisbett & Wilson, 1977). However, since cognitive processes can still not be accurately captured through objective methods, the use of self-reports provide us with valuable metacognitive knowledge which can help us understand perceptions, motives, and generally what someone is thinking (Guerrero, 2005). The limitation of the self-talk-sampling protocol notwithstanding, this approach has proven useful when exploring the broad world of goal-directed self-talk functions. The fact that the data allowed us to replicate some findings from previous studies regarding the situations in which self-talk was used (Hardy et al., 2001) and the functions of goal-directed self-talk (e.g., Latinjak et al., 2014), strengthens our confidence in the procedure and provides indirect support for the integrity of the thought-sampling procedure.

### **Conclusion**

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In this investigation, we have attempted to advance in our knowledge about some factors, which might elicit the inner voice that accompanies and instructs athletes during their sport participation, and which might affect what the *coach within* says to the athlete. Moreover, the results of this paper support the main goal-directed self-talk functions described by Latinjak et al. (2014), in a diverse range of sport situations. However, the results of this study are also in line with previous research (Latinjak, Masó et al., 2018) that has shown that the establishment of a framework of self-talk functions is an ongoing process driven by replication of previous studies in specific conditions (e.g., future studies might inquire into self-talk functions related to injuries). We have argued that that understanding the situational determinants and functions of goal-directed self-talk may help applied practitioners develop and evaluate cognitive-behavioral interventions in which self-talk is a main mechanism of change.

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