

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

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2

1 **Abstract**

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

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

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

13 Self-talk takes form in verbalizations addressed to the self, overtly or covertly,
14 characterized by interpretative elements associated to their content; and it either (a)
15 reflects dynamic interplays between organic, spontaneous and goal-directed, cognitive
16 processes or (b) conveys messages to activate responses through the use of
17 predetermined cues developed strategically, to achieve performance-related outcomes
18 (Latinjak, Hatzigeorgiadis, Comoutos, & Hardy, 2019). The current study is framed
19 within the line of research on goal-directed self-talk in sports. Within self-talk, goal-
20 directed self-talk is an expression of a controlled mental process deliberately employed
21 towards solving a problem or making progress on a task (Christoff, Gordon, & Smith,
22 2011; Latinjak, Zourbanos, López-Ros, & Hatzigeorgiadis, 2014).

23 The number of researches on goal-directed self-talk in sport has slowly grown in
24 the past twenty years having, therewith, significantly advanced our knowledge
25 concerning its situational determinants and functions (e.g., Hardy, Gammage, & Hall,

1 2001). In light of wide-reaching behavioural, motivational, affectual and cognitive
2 consequences of self-talk (see, Hardy, Oliver, & Tod, 2009), researchers have
3 repeatedly requested a greater understanding of the factors that shape athletes' self-talk
4 (e.g., Conroy & Metzler, 2004, Theodorakis, Hatzigeorgiadis, & Zourbanos, 2012).
5 Amongst the different antecedents of self-talk, Hardy et al. (2009) distinguished
6 personal factors from situational determinants, and Zourbanos, Hatzigeorgiadis,
7 Tsikaras, Chroni and Theodorakis (2010) further added a third category of social-
8 environmental factors. In this study, we focused on the situational determinants of goal-
9 directed self-talk. In the existing literature, it has been evidenced that athletes use goal-
10 directed self-talk more often before and during competition and practice than after
11 (Hardy et al., 2001). During competition, successful and unsuccessful executions
12 (Latinjak, Masó, & Comoutos, 2018; Zourbanos et al., 2015) and the levels of
13 uncertainty regarding goal-attainment (Latinjak, 2018) can also play significant roles in
14 athletes' goal-directed self-talk. Similarly, athletes' emotional experiences influence the
15 amount and functions of goal-directed self-talk. For example, more goal-directed self-
16 talk was observed in the anxiety-eliciting situations than in the anger-eliciting ones
17 (Latinjak, Hatzigeorgiadis, & Zourbanos, 2017). It was suggested that anxiety is often
18 associated to appraisals of one's weaknesses, whereas anger is associated with
19 appraisals of others' prejudicial and offending behaviour. Consequently, goal-directed
20 self-talk can more easily target one's weaknesses in anxiety-eliciting situations than
21 others discriminatory behaviour in anger-eliciting situations.

22 Several studies addressed the functions of athletes' self-talk. However, it is
23 worth noticing that this line of research has not been confined to goal-directed self-talk.
24 A plethora of experimental studies on strategic self-talk have inquired into the
25 mechanisms underlying the effects of repeating predetermined cue words or phrases on

1 sport performance (for a review see, Galanis, Hatzigeorgiadis, Zourbanos, &
2 Theodorakis, 2016). Regarding functions of goal-directed self-talk, previous research
3 has evidenced both points of agreement and inconsistency. In a nutshell, researchers
4 agree on two broad, main goal-directed self-talk functions: motivational or affective and
5 instructional or cognitive (Hardy, 2006; Hardy et al., 2009; Hatzigeorgiadis & Galanis,
6 2017; Latinjak, Ramis, & Torregrossa, 2017; Theodorakis, Weinberg, Natsis, Douma, &
7 Kazakas, 2000; Zourbanos, Hatzigeorgiadis, Chroni, Theodorakis, & Papaioannou,
8 2009). The popularity of this succinct and elegant two-functional representation of self-
9 talk stands in contrast to the inconsistencies between authors who proposed
10 multicategory structures of self-talk functions.

11 Contemplate, as an example for a larger structure, the Self-talk Use
12 Questionnaire (SUQ) which builds upon 12 functions, including psyching up, relaxing,
13 coping or skill enhancement (Hardy, Hall, & Hardy, 2005). To appreciate
14 inconsistencies between authors who proposed larger structures of self-talk, compare
15 the SUQ to the Functions of Self-talk Questionnaire (FSTQ), which assesses only five
16 self-talk functions: focusing attention, increasing confidence, regulating effort,
17 controlling cognitive and emotional reactions, and fostering automatic executions
18 (Theodorakis, Hatzigeorgiadis, & Chroni, 2008). From our perspective, the
19 inconsistencies between studies on self-talk functions are no limitation, per se. On the
20 contrary, they are enriching as they reflect the expectable differences in personal points
21 of views between different researchers (e.g., Tracy, 2010).

22 A relative shortcoming, we do believe to recognize within the self-talk function
23 literature is that no group of researchers has pursued this line of research for more than
24 one or two studies (e.g., Gammage, Hardy, & Hall, 2001; and Hardy et al., 2001), with
25 the exception of one group (Latinjak, 2018; Latinjak et al., 2014, Latinjak, Masó et al.,

1 2018; Latinjak, Hatzigeorgiadis et al., 2017). We identify goal-directed self-talk as a
2 rational thought processes, and, consequently, as a form of an intangible mental
3 construction (Latinjak, Hatzigeorgiadis et al., 2019). Along these lines, we adhere to a
4 relativist ontology that is underpinned by a belief that reality is multiple and subjective
5 (Denzin & Lincoln, 2005). Hence, it is understandable that different groups of
6 researchers come up with different representations of goal-directed self-talk functions.
7 In addition, the results from the studies on goal-directed self-talk functions derive from
8 qualitative data, and, therefore, the analytical generalisation in those studies should be
9 understood as a fluid idea in the form of a data-driven conceptual construction
10 (Atkinson, 2017). As such, studies in this line of inquiry require a series of replications,
11 collecting data from different populations and in different contexts, to allow for a more
12 comprehensively constructed idea of goal-directed self-talk functions.

13 In contrast to most proposed schemes of goal-directed self-talk functions, one
14 model (i.e., Latinjak et al., 2014) has been developed through multiple studies
15 representing, thus, a more comprehensively constructed idea of the aims to which
16 athlete use goal-directed self-talk. Without disagreeing with the idea of cognitive and
17 motivational aims of goal-directed self-talk (e.g., Zervas, Stavrou, & Psychountaki,
18 2007), this model considers a variety of cognitive (cognitive restructuring and cognitive
19 and behavioral control) and motivational (up and down regulation of arousal and
20 confidence) functions. Since goal-directed self-talk is a key element of many behaviour-
21 change techniques (Michie et al., 2013), including Rational-Emotive Behaviour
22 Therapy (Turner & Barker, 2014) and Cognitive-Behaviour Interventions (Neil, Hanton,
23 & Mellalieu, 2013), a more detailed understanding of its' functions would inform the
24 systematic development and evaluation of behaviour change interventions in sport
25 (Michie et al., 2016).

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

21 **The present study.** The present study pursued two specific goals. First, to
22 explore the situational determinants of goal-directed self-talk. In previous studies,
23 gestures, performance progress, and emotion-eliciting situations have been identified as
24 situational determinants of goal-directed self-talk (Latinjak, 2018; Latinjak et al., 2017;
25 Van Raalte, Brewer, Rivera, & Petitpas, 1994; Zourbanos et al., 2015). However, in

1 methods (Guerrero, 2005). Distant recall procedures had already allowed participants, in
2 past studies, to reflect on a broad diversity of scenarios in which they have used self-
3 talk (Gammage et al., 2001; Hardy et al., 2001; Latinjak et al., 2014). Subsequent
4 studies using concurrent thought-sampling strategies (Latinjak, 2018) and immediate-
5 recall protocols (Latinjak, Masó et al., 2018) had confirmed the findings obtained
6 through distant recall procedures, thus further endorsing this self-talk-sampling
7 protocol. Lastly, a written thought-listing strategy commonly used in self-talk research
8 (e.g., Van Raalte, Morrey, Cornelius, & Brewer, 2015; Zourbanos et al., 2009) was
9 chosen. Writing down self-statements has proven effective in isolating self-
10 verbalizations from other cognitive products such as preverbal thoughts or images.

11 **Participants**

12 Participants were 97 university-student athletes, aged between 18 and 36 years,
13 from local sport and health science faculties (59 males; $M_{\text{age}} = 20.36$; $SD = 3.38$). At the
14 time of the data collection, they were actively engaged in sports such as soccer ($n = 30$),
15 basketball ($n = 24$), athletics ($n = 21$), tennis ($n = 13$) and handball ($n = 9$), at regional (n
16 $= 60$), national ($n = 32$) and international levels ($n=5$). They practiced sport for an
17 average of 7.86 hours per week ($SD = 4.95$).

18 **Procedure**

19 The study was approved by the Ethics Committee of the first author's institution.
20 Contact with the athletes was established in the facilities of their faculties. A research
21 assistant, who was previously trained in practice trials, organized a face-to-face meeting
22 with those athletes interested in participating. In these meetings, each participant was
23 presented a series of questions (see Instrument section) on a tablet, which he or she
24 completed in the presence of the research assistant. Before answering, each participant
25 signed the informed consent form and filled out a short questionnaire regarding

1 demographic data (i.e., gender, age, sport type, competitive level and practice per
2 week). Completion time ranged between 25 and 40 minutes. During this time, the
3 research assistant was present to answer any question. The research assistant was
4 situated in a position from which he was unable to see what the participants were
5 writing.

6 **Instrument**

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

15 **Data Analyses**

16 Data analysis was structured in two parts: coding of situations in which self-talk
17 had occurred (inductive analyses), and coding of the functions of athletes' goal-directed
18 self-talk (mixed deductive and inductive analyses). Coding of the situations consisted of
19 two consecutive tasks. In Task 1, all situations described by the participants were read
20 by the first and second author, who independently proposed possible coding schemes
21 for situational determinants, and then engaged in constructive discussion until
22 agreement was reached. In Task 2, the research assistant categorized all the situations.
23 To calculate coding reliability ($[\text{number of agreements} / \text{number of themes}] * 100$), the
24 first author coded a random sample of 25% of all situations. Afterwards, the authors and

1 the research assistant convened to discuss differences in their ratings until complete
2 agreement was reached.

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

19 Most points of discussion were based on the two analysts identifying different
20 meanings within the same category. Therefore, further subcategories were proposed and
21 discussed until agreement was reached. At this stage the third author acted as a critical
22 friend. In agreement with Cowan and Taylor (2016), the role of critical friends was to
23 encourage reflections upon, and exploration of, multiple and alternative explanations
24 and interpretations of the data sampled in this study. Once the comments of the critical

1 friend were taken into account in the scheme, the first and second author categorized
2 text units into their respective subcategories.

3 With the final coding scheme in hand, a group of athletes, coaches and sport-
4 science students were contacted to comment to help the authors elaborate a
5 representation of the goal-directed self-talk functions which is comprehensible for the
6 target population. The main contribution of the discussion group was to replace the
7 traditional hierarchical tree (see Table S1, offered as an online supplement) with a
8 graphical representation of the main findings of this study (see, Figure 1). To that end,
9 the athletes, coaches and sport-science students' comments regarding form and wording
10 were taken into account. Such meaningful representations were recommended to add
11 rigor in qualitative research (Tracy, 2010), because they help disseminating research
12 findings. To offer additional details on each category, and to add transparency to the
13 data analysis, in Table S1, descriptors for each category were added. Lastly, because the
14 elaboration of the final report is part of the analysis in qualitative research (Sparkes &
15 Smith, 2014), a second critical friend, expert in sport self-talk, was contacted to
16 critically comment of the manuscript.

17 *Establishing confidence*

18 Regarding the list of universal criteria for rigor in qualitative research (Tracy,
19 2010), in the present study a relativist approach was adopted (Sparkes & Smith, 2014).
20 That is, “criteria for judging the quality of qualitative research are drawn from an
21 ongoing list of characterizing traits as opposed to being applied in a universal manner to
22 all qualitative research (p. 4188, Smith & Caddick, 2015).” In the present study, the
23 following criteria were included: the worthiness of the topic; the significant contribution
24 of the work; the resonance, that is, the efforts made to represent the findings in this
25 study in a way both comprehensible and significant to the target population (see, Figure

1 1); and the meaningful coherence of the research, indicating how well the study
2 interlinks in terms of the aim, method, and results.

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

9 **Results**

10 In this section the situations in which athletes used self-talk and the function of
11 their self-talk are described. Furthermore, in Table S2, offered as online supplement, the
12 distribution of self-talk functions across situations can be inspected. In Table S2, for
13 instance, we observe that self-talk aimed at creating low arousal states is used more
14 often in competition than training, or that the frequency of future-oriented self-talk
15 decreases from before to during and after competition. Yet, with regard to the
16 interpretation of Table S2, it should be kept in mind that absolute frequencies of text
17 units and percentages do not indicate the importance of any category (Sparkes & Smith,
18 2014).

19 **Situations in which goal-directed self-talk was used**

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

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

9 Regarding practice, competition and performance self-evaluations, self-talk may
10 be elicited by *competition* (534; 80%) and *training* (72; 11%). More specifically, self-
11 talk is elicited by competitions perceived as both *demanding* (69; 10%) and
12 *undemanding* (16; 2%). Moreover, self-talk may help athletes to self-regulate *prior to*
13 *the competition* (66; 10%), *during the competition* (404; 61%), and *after the competition*
14 (47; 7%). During the competition, self-talk responds to challenges posed by *winning*
15 (22; 3%), *drawing* (36; 5%), and *losing* (54; 8%). After the competition, self-talk also
16 aids athletes to cope with *victory* (19; 3%) and *defeat* (18; 3%). Regarding performance
17 evaluations, in both competition and training, self-talk is used after both *successful*
18 *actions* (54; 8%) and *unsuccessful actions* (149; 22%).

19 Beyond practice, competition and performance self-evaluations, self-talk was
20 also used to cope with the demands placed by (a) physical sensations, including *fatigue*
21 (29; 4%) and *injury* (10; 2%), (b) playing status, including *leaving the pitch after*
22 *substitutions* (9; 1%), *entering the pitch* from the bench (4; 1%), and *remaining on the*
23 *bench* (10; 2%), (c) *referee decisions* (16; 2%), and (d) *confrontation* with teammates,
24 opponents and the coach (29; 4%).

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

1 An overview and examples of goal-directed self-talk functions is offered in
2 Figure 1. To offer details on each category, and to add transparency to the data analysis,
3 Table S1 is provided as an online supplement, with definitions of all primary, secondary
4 and tertiary categories. Regarding the deductive analysis, using the original seven
5 categories of goal-directed self-talk functions, the authors concluded that all meaning
6 units could adequately be placed within this coding scheme. Thus, the seven categories
7 were required and sufficient to allocate all text units. Nonetheless, it is noteworthy that
8 the distribution of text units across the seven categories was not homogeneous. Most
9 goal-directed self-talk as future-oriented (e.g., “you’ll be fine”; $n = 868$) and aimed at
10 regulating cognition and behavior (e.g., “focus on the task” $n = 793$). With regard to
11 arousal, there were significant amounts of self-talk creating high-arousal states (e.g., “be
12 strong”; $n = 343$) and creating low-arousal states (e.g., “calm down”; $n = 252$).
13 Observations of self-talk targeting reappraisal (e.g., “it’s just a mistake” $n = 146$),
14 control of high-arousal states (e.g., “don’t get mad”; $n = 118$) and control of low-arousal
15 states (e.g., “don’t be sad”; $n = 80$) were the least frequent. Inter-rater agreement for
16 each primary category ranged between 81% and 89%.

17 Despite the authors’ agreement on the adequacy of the seven-original goal-
18 directed self-talk functions, some of these categories were evaluated as too broad, and,
19 consequently, text units with different meaning were grouped in the same category. As a
20 result, secondary categories were proposed. The subcategorization was required for the
21 four categories with the largest count of text units (inter-rater agreement for each
22 secondary and tertiary category ranged between 85% and 98%). However, additional
23 categories might also be required for the remaining three categories. In future studies,
24 when larger numbers of text units evidence greater divergence in the meaning within
25 these categories, clear substructures may emerge and merit description.

1 Regarding the future-oriented self-talk, distinctions could be made between self-
2 talk aimed at *confidence boosting* (e.g., “you’re better than her”; $n = 549$), *down-*
3 *regulating confidence* (e.g., “you’re not that much better”; $n = 29$), *time management*
4 (e.g., “you have still some time left”; $n = 67$), *goal-orientation* (e.g., “try to learn
5 something here”; $n = 117$) and *engagement* (e.g., “think about the reasons why you are
6 here”; $n = 105$). In addition to these secondary categories, future-oriented self-talk
7 subcategorized as goal-orientation and engagement required further subcategorization to
8 make sense of incompatible meaning units. Adopting the vocabulary used in relevant
9 goal and motivation theories in sport and exercise psychology (i.e., Needs Achievement
10 Theory, Nicholls, 1989; Self-determination Theory, Deci & Ryan, 2000), self-talk could
11 be aimed at goal-orientation could specifically promote *performance approach* (e.g.,
12 “show them what you can do”; $n = 65$), *performance avoidance* (e.g., “don’t fail now”;
13 $n = 9$), and *mastery approach* (e.g., “this is your time to work on your skills”; $n = 43$).
14 Self-talk aimed at engagement could specifically reflect *intrinsic regulations* (e.g.,
15 “enjoy yourself while playing”; $n = 31$), or *extrinsic regulations* (e.g., “don’t let your
16 team down”; $n = 56$).

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

1 *technique* (e.g., “with the inner foot”; $n = 95$); and to *strategy* (e.g., “wait till there is a
2 gap”; $n = 201$).

3 Finally, self-talk aimed at creating high-arousal states mostly referred to *effort*
4 *expenditure* (e.g., “all you got”; $n = 308$), but also prompted the athlete to *overcome*
5 *adversity* (e.g., “keep going”; $n = 35$). Moreover, self-talk aimed at creating low-arousal
6 states was usually formulated as *general deactivation instructions* (e.g., “relax”; $n =$
7 198), but at times they also contained *specific deactivation instructions* (e.g., “breath
8 slowly”; $n = 54$).

9 Discussion

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

21 Situational Determinants of Athletes’ Goal-directed Self-Talk

22 Athletes’ goal-directed self-talk occurred in diverse sports contexts, grouped in
23 terms of practice, competition and performance self-evaluations. Previous findings
24 (Hardy et al., 2001) have shown that self-talk is more frequent in competition than
25 training, yet such quantitative assumptions cannot be confirmed through our qualitative

1 and descriptive data. In regard to specific situational determinants within competitions,
2 the participants frequently described unsuccessful performance, states of losing and
3 defeat, and, less frequently, successful performance, winning and victory. To date, very
4 few studies on goal-directed self-talk have focused on performance as a situational
5 determinant of self-talk (Hatzigeorgiadis, & Biddle, 2008). Stemming from Van
6 Raalte's observational studies in tennis (Van Raalte et al., 1994; Van Raalte, Cornelius,
7 Brewer, & Hatton, 2000), Hardy et al. (2009) listed match circumstances as one of
8 several situational determinants of self-talk. These studies showed that winning or
9 losing, the match or a specific point, can engender either positive or negative self-talk.
10 Recently, Zourbanos et al. (2015) have continued research on observable self-talk
11 employing sequential analyses. Unfortunately, less attention has been paid in their study
12 to performance as a situational determinant of goal-directed self-talk, yet their line of
13 research seems promising from a methodological point of view, since sequential
14 analyses might allow us to establish relationships between specific outcomes and types
15 of goal-directed self-talk.

16 Interestingly, situations other than practice, competition and performance self-
17 evaluations have also emerged from the participants' responses. Fatigue and injury are
18 two situations, related to psychophysiological states, which may require goal-directed
19 self-talk for self-regulation purposes and that have received little attention in the self-
20 talk literature. Whereas general cognitive reactions to both fatigue and injury have
21 recurrently been examined scientifically (e.g., Garcia, Razon, Hristovski, Balagué, &
22 Tennenbaum, 2015; Huysmans & Clement, 2017), no previous study has specifically
23 addressed how athletes use self-talk to cope with these situations. Yet, in relation to
24 tasks eliciting fatigue, a series of experimental studies on the effects of motivational
25 self-talk have shown self-talk to increase resistance (e.g., Wallace et al., 2017) and,

1 most importantly, decrease rates of perceived exertion (Blanchfield, Hardy, de Morree,
2 Staiano, & Marcora, 2014). Understanding ways in which self-talk can help athletes to
3 cope with pain and injury may lay foundations for effective cognitive-behavioral
4 interventions in physically demanding sports such as resistance or strength sports
5 (Latinjak, de las Heras et al., 2018).

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

23 **The aims of goal-directed self-talk**

24 This study helped us to advance from the seven original goal-directed self-talk
25 functions (Latinjak et al., 2014) towards a more comprehensive scheme of self-talk

1 functions (see for a integrative scheme of self-talk functions, Figure 2). The addition of
2 subcategories initially indicates that part of the relevance of goal-directed self-talk lies
3 within its functional diversity. Yet, the subcategorization suggests that the different
4 aims of goal-directed self-talk reflected in the primary categories, may be achieved in
5 several ways. In accordance with previous research, cognitive and behavioral control
6 over oneself may be obtained by general increase in concentration (Landin & Hebert,
7 1999), or by means of performance analysis and tactical/ technical planning (e.g.,
8 Latinjak, Torregrosa, & Renom, 2011). Along these lines, self-talk may also help the
9 athlete prepare for upcoming participations or actions by enhancing or down-regulating
10 confidence and promoting goals and engagement. The confidence function of self-talk is
11 well supported in self-talk literature (Theodorakis et al., 2008; Zourbanos et al., 2009),
12 and Hardy et al. (2005) had already discussed the goal and motivation functions of self-
13 talk.

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

1 at negative feedback (you've done wrong) and error description (too strong) to improve
2 technical performance.

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

14 At this point, it would be timely to offer a specific suggestion for applied
15 practitioners, based on the current findings. We suggest encouraging athletes to reflect
16 periodically on psychologically challenging situations, in training and competition, and
17 on the goal-directed self-talk used to master those situations. Furthermore, alternative
18 self-statements can be mentally explored, by asking athletes what else they could say to
19 solve the same challenges. Because athletes struggle frequently to abandon learned self-
20 talk patterns (Latinjak, Hatzigeorgiadis et al., 2019), Figure 1 can be used to inspire
21 athletes to explore different self-talk perspectives. This applied habit can lead to greater
22 flexibility in goal-directed self-talk and enhanced metacognitive knowledge and skills
23 (Latinjak, de las Heras et al., 2018).

24 **Limitations**

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

12 Second, the self-talk-sampling protocol may have introduced memory biased
13 reports of self-talk. As time elapsed since the actual situations took place, the
14 participants might have changed the way in which they appraised the events and their
15 thoughts. Also, according to Zourbanos et al. (2010), with regards to the assessment of
16 self-talk, verbal reports are associated with cognitive processes that sometimes may be
17 beyond meta-conscious control and, thus, cannot be described by the individuals, may
18 be forgotten, or recalled inaccurately (Nisbett & Wilson, 1977). However, since
19 cognitive processes can still not be accurately captured through objective methods, the
20 use of self-reports provide us with valuable metacognitive knowledge which can help us
21 understand perceptions, motives, and generally what someone is thinking (Guerrero,
22 2005). The limitation of the self-talk-sampling protocol notwithstanding, this approach
23 has proven useful when exploring the broad world of goal-directed self-talk functions.
24 The fact that the data allowed us to replicate some findings from previous studies
25 regarding the situations in which self-talk was used (Hardy et al., 2001) and the

1 functions of goal-directed self-talk (e.g., Latinjak et al., 2014), strengthens our
2 confidence in the procedure and provides indirect support for the integrity of the
3 thought-sampling procedure.

4 **Conclusion**

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

17

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9

Table 1

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

Situations and situational determinants (n)	Example (parts of original transcripts)
Context	
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)	
Performance analyses	
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)	
Miscellaneous situations	
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..."

Figure Captions

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

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

Athletes use goal-directed self-talk to...

... gain cognitive and behavioural control, by ...

- ... analysing performance, to ...
 - ... find mistakes: "You are always repeating the same move"
 - ... learn from past events unrelated to one's own performance: "she had always played the important points like that..."
 - ... give oneself positive reinforcement: "well done, great effort"
- ... enhancing concentration: "concentrate/ focus/ pay attention"
- ... controlling behaviour: "be quiet"/ "get out of here"
- ... focus on performance instructions, regarding...
 - ... technique: "keep your back straight"/ "bend your knees"
 - ... strategy: "try to find some space behind the defensive lines"

... become aware of debilitating high arousal states: "don't be nervous"/ "don't be angry"

... become aware of debilitating low arousal states: "don't be too confident"/ "don't give up"

... reappraise real, perceived or anticipated events: "it's not your fault/ you have been (un)lucky"



... precipitate facilitative low-arousal states, using...

- ... general instructions: "relax"/ "calm down"/ "take it easy"
- ... specific instructions: "take your time and breathe deeply"

precipitate facilitative high-arousal states, to...

- ... increase effort expenditure: "give 100%"/ "fight"/ "keep the rhythm up"
- ... overcome adversity: "pick yourself up and fight"/ "hold on"

... improve attitude for upcoming actions, by...

- ... enhancing confidence: "it's not that difficult"/ "you can do it"
- ... setting achievement goal related to...
 - ... desired outcomes: "show them who you are"/ "you have to win"
 - ... outcomes to avoid: "don't lose now"/ "don't make yourself look ridiculous"
 - ... practice and performance: "go and try new things you can't try in other games"
- ... promoting reasons to continue participating, linked to...
 - ... the enjoyment and benefits of participation: "enjoy the game"/ "go and have fun"
 - ... responsibilities, expectation by others and obligations, : "you owe it to the team, don't let them down"
- ... managing perceptions of time: "you are almost there/ there is still plenty of time left"
- ... acknowledging threats: "they can still beat you"/ "you will lose like that"

