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Goal-directed and undirected self-talk: Exploring a new perspective for the study of athletes'

self-talk

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2   athletes' self-talk

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1   **Abstract**

2   Objectives: The present study aimed to introduce the distinction between goal-directed

3   and undirected thoughts used in general psychology into the automatic self-talk

4   paradigm used in sport psychology. In particular, the purpose of this investigation was

5   to explore the structure and the content of athletes' goal-directed and undirected self-

6   talk.

7   Method: Overall, 87 athletes participated in two studies ($n = 32$ and $n = 55$,

8   respectively).Qualitative methods were used to analyze data, in the form of text units

9   that were collected retrospectively through thought sampling regarding participants'

10 self-talk.

11 Results: The analysis revealed differences in the structure of goal-directed and un-

12 directed self-talk. Spontaneous, undirected, self-talk involved mostly explaining past

13 outcomes and foreseeing upcoming events, whereas goal-directed self-talk aimed at

14 attaining control over cognitions and activation for action. Spontaneous self-talk could

15 be classified based on two dimensions: valence (positive – negative) and time

16 perspectives (retrospective, present-related, and anticipatory), whereas goal-directed

17 self-talk could be classified into two different dimensions: activation (activated states,

18 neutral, deactivated states) and time orientation (past, past-present, present-future, and

19 future oriented). Furthermore, differences were also observed with regard to the person

20 at which statement were addressed.

21 Conclusions: Overall, the findings attempt to explore a new perspective into the study

22 of self-talk, which can help improving the conceptualization, creating new research

23 directions, and enhancing the understanding of self-talk for developing effective

24 interventions.

25 *Keywords*: thoughts, cognitive processes, valence, time perspective, activation

1   Goal-directed and undirected self-talk: Exploring a new perspective for the study of

2   athletes' self-talk

3   What people say to themselves engaging in what is called inner speech, inner

4   conversation, or self-talk has traditionally been seen as crucial to how they behave and

5   perform (Ellis, 1994). Hence, it is not surprising that in sport psychology, where the

6   term self-talk has prevailed, a considerable number of studies has focused on exploring

7   athletes' thought content and self-statements (e.g., Hardy, 2006; Hardy, Gammage, &

8   Hall, 2001; Zourbanos, Hatzigeorgiadis, Chroni, Theodorakis & Papaiannou, 2009).

9   The present investigation sought to extend the self-talk literature in sport and explore a

10   new perspective regarding the conceptualization and taxonomy of self-talk guided by

11   the relevant literature in general psychology.

12   *The conceptualization of thoughts in general psychology*

13   Thoughts and self-talk have received significant research attention in different

14   areas of psychology (e.g., Hart & Albarracin, 2009; Longe et al., 2010; Oppenheim &

15   Dell, 2010). Several categorizations have been proposed to discriminate between

16   different types of thoughts and describe the underlying structure of individuals'

17   thoughts, such as the distinction between conscious and unconscious thoughts

18   (Dijksterhuis, 2004), or the distinction between operant and respondent thoughts

19   (Klinger, 1977). A categorization that seems recurrent among different lines of research

20   (e.g., Christoff, 2012; Ickes & Cheng, 2011) differentiates between *goal-directed*

21   thoughts, which are operant in nature, and involuntary and unintentional *undirected*

22   thoughts.

23   Christoff, Gordon and Smith (2011) described goal-directed thinking as a mental

24   process deliberately employed towards solving a problem or making progress on a task.

25   Goal-directed thinking usually occurs during reasoning, problem solving and decision

1 making. Goal-directed thinking includes, firstly, the representation of current and

2 desired states, and secondly, the establishment of a link between current and desired

3 states through a series of actions which attempt to convert the former to the latter

4 (Unterrainer & Owen, 2006).

5   With regard to undirected thoughts, Christoff et al. (2011) further distinguished

6 three types: *mind-wandering*, *stimulus-independent thoughts* and *spontaneous thoughts*.

7 According to Klinger (2009), mind-wandering, also termed task-unrelated thoughts

8 (Christoff, 2012), would include any thought that is unrelated to the ongoing task or

9 activity, thus unrelated to the thought eliciting situation (e.g. thinking about a movie

10 while attending a team meeting); stimulus-independent thoughts would be related to the

11 context of the activity, yet unrelated to ongoing stimuli a person receives (e.g., thinking

12 about past strategic mistakes while in a team meeting); and spontaneous thoughts are

13 unintended, non-working, non-instrumental thoughts that come to mind unbidden and

14 effortless, which are however linked to the task or activity at hand and relevant

15 contextual stimuli (e.g., thinking about how a suggestion was appraised by the team

16 manager). In other words, the content of mind-wandering is unrelated to the task at hand

17 or the situation, whereas the content of stimulus independent and spontaneous thoughts

18 are related to the situation; nevertheless, stimulus independent thoughts do not directly

19 relate to ongoing stimuli, whereas spontaneous thoughts are related to ongoing stimuli

20 but they are not goal directed. Altogether, undirected thoughts have been less studied as

21 compared to goal-directed thoughts, despite representing a common phenomenon,

22 occupying about a third of our waking life (Christoff et al., 2011). However, recently, a

23 growing number of researchers have acknowledged that undirected thoughts represent a

24 relevant cognitive phenomenon that influences other cognitive aspects of human life

1 such as attention or decision making and the relevant literature has been growing

2 (Christoff, 2012).

3 *The conceptualization of self-talk in sport psychology*

4   In the sport self-talk literature, Theodorakis, Hatzigeorgiadis and Zourbanos

5 (2012) distinguished two main research paradigms: one addressing the effects of self-

6 talk as a cognitive intervention strategy (e.g., Hatzigeorgiadis, Galanis, Zourbanos, &

7 Theodorakis, 2014; Latinjak, Torregrosa, & Renom, 2010a), and another seeking to

8 describe and explore athletes' automatic self-talk (e.g., Hardy, Gammage et al., 2001;

9 Hatzigeorgiadis, 2002; Zourbanos et al., 2009). The latter focuses implicitly on both

10 goal-directed and undirected thoughts.

11   From the early days of self-talk studies in sport, athletes' automatic self-talk was

12 divided into positive and negative (e.g., Van Raalte, Brewer, Rivera, & Petitpas, 1994).

13 Traditionally, self-talk that assists athletes staying appropriately focused in the present,

14 not dwelling on the past and neither projecting too far in the future, was considered

15 positive (Weinberg, 1988). In contrast, inappropriate, irrational, and counterproductive

16 or anxiety provoking statements were labeled as negative self-talk. Hardy, Gammage et

17 al. (2001) argued that the dimension of self-talk valence (i.e., positive / negative self-

18 talk) should refer to the content solely and not to the effects of self-talk, because

19 positively and negatively valenced self-talk can have either facilitating or debilitating

20 performance effects (Theodorakis et al., 2012). Another differentiation between

21 different types of self-talk has been made between instructional and motivational self-

22 talk (Theodorakis, Weinberg, Natsis, Douma, & Kazakas, 2000). Instructional self-talk

23 refers to statements involving some sort of direction for action, whereas motivational

24 self-talk, which has been paralleled with positive self-talk, involves positively phrased

25 statement addressed to oneself, such as psyching-up and confidence building. Finally,

1   Hardy, Hall and Alexander (2001) explored self-talk and affective states in sport

2   coming up with a two-dimensional structure of self-talk based on valence and intensity

3   (which ranged from extremely demotivational to extremely motivational). However,

4   this two-dimensional structure was not based upon empirical evidence but on the affect

5   grid (Russell, Weiss, & Mendhelson, 1989).

6   Our understanding regarding the content and structure of self-talk has been

7   advanced through the development of research instruments assessing athletes' self-talk.

8   Initially, Hatzigeorgiadis and Biddle (2000) developed the *Thought Occurrence*

9   *Questionnaire for Sports* (TOQS), which described three types of negative self-talk:

10 worries related to performance, thoughts of escape and task-irrelevant thoughts. More

11 recently, Zourbanos et al. (2009) developed the *Automatic Self Talk Questionnaire for*

12 *Sports* (ASTQS), a more inclusive measure of athlete's self-talk, describing four types

13 of positive self-talk (motivational/ psych-up statements, confidence building statements,

14 instructional/ concentration statements, and anxiety controlling statements); and four

15 types of negative self-talk (worries, statements about disengagement, statements about

16 somatic fatigue, and irrelevant thoughts). Despite being more comprehensive, and

17 including self-talk statements that can be described as goal-directed or undirected, such

18 a distinction has not been made based on the ASTQS.

19   Most closely related to the goal-directed-undirected distinction, Hardy, Oliver

20 and Tod (2009) differentiated between sport-oriented and sport-unrelated statements. In

21 the matter of sport-orientated statements, Hardy noted an overlap between strategic self-

22 talk (intervention cues) and automatic thoughts and concluded that "such self-

23 statements occur automatically or in a more deliberate manner" (p. 38). In sum, to the

24 best of the authors' knowledge, a clear distinction between goal-directed and undirected

25 self-talk, has yet to be considered in sport psychology.

1   *The present research*

2   In this study we sought to combine the goal-directed / undirected thoughts

3   framework from general psychology with the automatic self-talk paradigm used in sport

4   psychology. Thus, our main purpose was to explore the structure and content of

5   undirected and goal-directed self-talk in sports.

6   Following Gross's (2002) recommendations, emotion concepts were used to

7   help participants recalling a variety of sport situations and the thoughts that occurred to

8   them, or the instructions they gave themselves in such situations. According to Gross,

9   emotions arise in situations that are important to an individual and which can be easily

10   and precisely recalled. Besides, previous research has evidenced that in these emotion-

11   eliciting situations, a high level of cognitive performance is desirable (Richards &

12   Gross, 2000). Therefore, it was considered that the use of emotion-eliciting situations

13   would facilitate athletes recalling and describing with reasonable accuracy their self-

14   talk. The use of emotion eliciting situations was expected to further facilitate the

15   purposes of the study because such situations require some sort of emotional regulation.

16   According to the model of emotion regulation outlined by Gross (2001), self-talk in the

17   form of self-directed instructions is typically used for emotional regulation processes.

18   With regard to the emotion concepts, the expanded version of the original two-

19   dimensional model of core affect (e.g., Russell, 1980) outlined by Latinjak (2012) was

20   used. The two-dimensional model includes the dimensions of valence and arousal as

21   basic building blocks, and was designed as a conceptual framework for the selection of

22   emotions in research (Ekkekakis, 2008). Further, Latinjak (2012) added a third

23   dimension, namely time perspective, in order to distinguish in these models relevant yet

24   different emotions such as anger and fear. Among the advantages of the dimensional

25   models, Ekkekakis (2008) pointed out their "unparalleled breadth of scope and

1   parsimony" (p. 141) and subsequently encouraged the use of dimensional models when

2   a wide variety of emotional experiences are to be addressed (Ekkekakis, 2013). Based

3   on the three-dimensional model outlined by Latinjak (2012), a recent study has

4   proposed a selection of emotion concepts which have been shown to represent most

5   emotional experiences in sports (Latinjak, López-Ros, & Font-Lladó, 2014). These

6   concepts were the ones included in this study: sadness, anger, resignation, anxiety,

7   relief, euphoria, confidence and excitement.

8   **Study 1**

9   **Method**

10   *Participants*

11   Participants were 32 Spanish athletes (18 males, 14 females; M_{age}= 19.24 years,

12   *S.D.* = 1.51) recruited from a sport science university who volunteered to take part in

13   the study. They were members of different individual (athletics, $n = 4$; tennis, $n = 5$;

14   competitive dancing, $n = 4$), and team (basketball, $n = 7$; soccer, $n = 12$) sports clubs,

15   and they were at the time competing at national ($n = 27$) and international ($n = 5$) level.

16   The data collection took place during the competitive season.

17   *Procedure*

18   Ethical approval was granted from the first authors' university ethics board.

19   Athletes were explained that participation is voluntary, that they could withdraw from

20   the study at any time they wished to, and signed the informed consent. All participants

21   received a booklet with written instructions, which was also used to report their

22   responses. The data collection took place in small groups (3-4 athletes). Answering time

23   ranged between 20 and 45 minutes.

24   In order to explore a variety of situations, participants were asked to *recall any*

25   *sport-related situation during the last month when they experienced sadness, anger,*

1   *resignation, anxiety, relief, euphoria, confidence and excitement*. Once they

2   remembered a corresponding sport-related situation, they were asked to write down in

3   the designated space things they said to themselves or thoughts that occurred to them in

4   these situations. No instruction was given to the number of responses. The order of the

5   emotion concepts in the booklet was counterbalanced.

6   *Analysis*

7   The data analysis took place over three stages which followed a preparatory

8   phase. In the preparatory phase, all statements were recoded into single text units; in the

9   first stage, the text units were categorized into designated categories with regard to the

10   goal-directed / undirected self-talk framework; in the second stage, the underlying

11   dimensions of the text units were explored; and in the third stage, the statements were

12   categorized by different judges into the dimensions that evolved from the previous

13   stage. These stages are further described below.

14   In the preparatory phase, complex answers were broken down into single text

15   units by the first author. According to Lyons (1981), a text unit is an independent

16   statement with significance for its own. Moreover, a text unit cannot be further divided

17   without altering its significance. Once the answers were broken down an independent

18   judge was asked to screen the pool of text units and eliminate statements that she

19   perceived as redundant (participant gave twice the exact same response) or

20   incomprehensible (not being able to read the answer or make sense of its content).

21   In the first stage, three individuals who were not involved in the study at the

22   time were asked to contribute to the analysis. They were members of sport science

23   faculties teaching modules related to research methodology, developmental psychology

24   and sport psychology; they all had practical experience with qualitative research

25   methodology. These judges were asked to organize the text units into different types of

1   self-talk following the process described by Boyatzis (1998). Initially, they were asked

2   to distinguish between goal-directed and undirected statements, in accordance to the

3   definitions offered by Christoff et al. (2011). The judges were also informed that the

4   main difference between the two types of statements was intentionality: goal-directed

5   statements are used intentionally to make progress on a task and undirected statements

6   appear unintentionally. Moreover, the judges were reminded that both types of

7   statements can have either facilitative or debilitative effects for performance.

8   Subsequently, the judges were asked to distinguish all undirected statements into three

9   subcategories, namely, spontaneous statements, mind wandering and stimulus-

10 independent statements based on the definitions provided by Christoff et al (2011).

11 Judges were informed that the content of mind-wandering is unrelated to the context in

12 which the emotion appears. In contrast, the content of spontaneous and stimulus-

13 independent statements is related to the sport context. However, spontaneous statements

14 are related to the emotion-eliciting situation, whereas stimulus-independent statements

15 are unrelated to the emotion-eliciting situation. Sport-unrelated examples were offered

16 to the judges so as to ensure they comprehended the differences among the three types

17 of statements. In both steps, the judges confirmed that the guidelines were clear and

18 understandable. On completion, the inter-rater agreement for the statement type was

19 calculated. In case of disagreement in either step, the three judges convened to discuss

20 until agreement was reached.

21   In the second stage, three of the authors of this manuscript analyzed,

22 independently and in group sessions, the underlying dimensions of the previously

23 categorized statements. Two of the authors independently identified potential solutions

24 and, subsequently, engaged, together with the other author, in several reflective

1   discussions. This process of reflection and debate between the researchers was repeated

2   until agreement was reached.

3   Finally, in the third stage two different independent judges, also members of

4   sport science faculties with expertise on qualitative analysis, and the first author

5   categorized all text units into the dimensions that evolved from the previous stage. The

6   raters were explained the meaning of each dimension identified in the previous stage

7   and were presented with examples to better understand the concepts. The inter-rater

8   agreement in this case was calculated separately for each identified dimensions. Again,

9   in case of disagreement in either case, the first author and the two judges convened to

10   discuss until agreement was reached.

11   **Results and Discussion**

12   No participant reported problems understanding what was required and recalling

13   relevant information. All reported statements were listed as text units by the first author.

14   After removing redundant and incomprehensible responses, 474 statements were

15   analyzed.

16   *Stage 1: Statement-type analysis*

17   Firstly, the group of three judges categorized the statements into *goal-directed*

18   and *undirected statements* (Inter-rater agreement = 87%). The results evidenced that

19   participants reported mainly undirected statements ($n = 415$) and very few goal-directed

20   statements ($n = 2$). However, the judges identified that some statements could be

21   interpreted as either goal-directed or undirected statements ($n = 57$). For example,

22   statements such as "*We are the best*" or "*Let's go*" were considered as likely to be

23   either, intentional, goal-directed statements or, unintentional, spontaneous statements.

24   With regard to this overlap, Klinger (2009) noted that spontaneous and goal-directed

25   thoughts often feature the same content. In addition, Hardy, Gammage et al. (2001)

1   found a similar overlap and noticed that some self-statements may occur automatically

2   or in a more deliberate manner. Due to the lack of goal-directed statements, we could

3   not further analyze the content and structure of goal-directed self-talk in this study.

4   Therefore, those statements categorized as goal-directed were excluded from further

5   analysis. The judges recommended keeping statements which were interpreted as either

6   goal-directed or undirected for the next stages, so as not to lose any information which

7   could be potentially relevant.

8   Secondly, the judges categorized the undirected statements ($n = 472$) into

9   spontaneous statements, mind-wandering and stimulus-independent statements. Inter-

10   rater agreement was 99% and the results evidenced that the participants' undirected

11   statements were mainly spontaneous ($n = 466$) and seldom stimulus-independent ($n = 5$)

12   or mind-wandering ($n = 1$). Consequently, it was only possible to further analyze the

13   structure and content of spontaneous statements.

14   *Stage 2: The structure of spontaneous statements*

15   The 466 statements identified as spontaneous were further analyzed by the three

16   authors for exploring the structure of these statements. The analysis revealed a two-

17   dimensional structure (Figure 1). In particular, participants' answers were found to vary

18   in terms of valence, ranging from positive to negative, and in terms of time perspective,

19   ranging from anticipatory to retrospective. Considering that the valence dimension is

20   well researched in self-talk literature (e.g., Hardy, Hall et al., 2001; Hardy, 2006;

21   Zourbanos et al., 2009), we focused this section on time perspective.

22   Based on the results, *time perspective* is related to the statements referent (i.e.,

23   the events a statement refers to). There are two important concerns that should be raised

24   concerning this newly described dimension: time perspective does not relate to verbal

25   tense and to the events that trigger the cognitive process. Firstly, verbal tempus and time

1   perspective in certain instances coincide, whereas in others they do not. For instance, in

2   the case of an athlete saying "*I lost my chance*" after missing a penalty kick, time and

3   tense coincides, as the statement is expressed in past tense and relates to a past event. In

4   contrast, in the case of an athlete saying "*I prepared well for the game*" just before the

5   beginning of the game, the use of past tense does not coincide with the time perspective,

6   as this relates to the upcoming event.

7   Secondly, the events that trigger a certain cognitive process are not necessarily

8   the statements' referents (e.g., a statement such as "*I could win the match*" could be

9   triggered by winning a decisive point). In this sense, based on the contextualized nature

10   of time perspective, it was sometimes difficult, even impossible, to reach inter-rater

11   agreement for some statements (e.g., "*the other one is afraid*" was one of those

12   statements impossible to categorize as either anticipatory or retrospective).

13   To the best of our knowledge, the *time perspective* dimension has not been

14   considered in sport self-talk literature yet. However, the perspective of time has largely

15   been debated by philosophers (e.g., Mead, 1936) and psychologists (e.g., Flaherty &

16   Fine, 2001). Specifically, in cognitive psychology some thoughts have been classified

17   as future-directed thoughts (for a review see, Aspinwall, 2005). However, when

18   discussing future-oriented thoughts psychologists usually refer to planning, goal-setting,

19   daydreams, aspirations, hopes, worries, predictions and expectations, whilst many of the

20   anticipatory statements forwarded by the participants in this study referred to a future

21   more in the sense of Mead: "the future is now, on the cutting edge of the present"

22   (Flaherty & Fine, 2001). Although past research has provided evidence regarding

23   antecedents and consequences of self-talk in sport (Hardy et al., 2009; Theodorakis et

24   al., 2012), studies have not taken into consideration the distinction between anticipatory

25   and retrospective self-talk. To confirm or reconsider conclusions drawn from past

1   research, future research should inquire separately into the factors which influence

2   anticipatory and retrospective self-talk, and into their cognitive, motivational,

3   behavioural and affective consequences.

4   *Stage 3: The content of spontaneous statements*

5   To further explore the content of spontaneous self-talk, two judges and the first

6   author categorized all 466 spontaneous statements in terms of valence and time

7   perspective. In this stage, the inter-rater agreement was calculated in two steps. First,

8   the three judges classified all text units in terms of *valence*: *positive* if the content of the

9   statement was positive for the athlete (e.g., "I play good"); *negative* if the content of the

10   statement was negative for the athlete (e.g., "I play bad"); and *neutral* if the content of

11   the statement was (n)either good (n)or bad (e.g., "there are people watching"). Second,

12   the three judges classified all text units in terms of *time perspective*: *anticipatory* if the

13   content of the statement referred to something in the future (e.g., the next point);

14   *retrospective* if the content of the statement referred to something in the past (e.g., the

15   last point); and *neither anticipatory nor retrospective* if the content of the statement

16   referred to (n)either future (n)or past. However, in regard to this last step, based on the

17   suggestion of the first author and the two judges, they further distinguished those

18   statements classified as *neither anticipatory nor retrospective* into present related

19   statements if they referred to an ongoing task (e.g., "I am playing well") or contextual

20   statements if they referred to the sport, the self or others in general (e.g., "this sport is

21   very tough"). Consequently, there were four categories for time perspective. In regard to

22   inter-rater agreement, we calculated the percentage of text units with agreement in

23   valence and the percentage of text units with agreement in time perspective.

24   Inter-rater agreement was 89% for valence and 77% for time perspective. These

25   levels of agreement and disagreement evidence to a reasonable degree the difficulty to

1 categorize thought content, specifically for time perspective. After discussing among the

2 three judges and reaching consent, the text units were categorized as follows: for

3 valence, 221 statements were characterized as positive, 222 as negative and 12 as

4 neither positive nor negative (11 statements could not be categorized in terms of

5 valence); for time perspective, 195 statements were characterized as anticipatory, 197 as

6 retrospective, and 53 as neither anticipatory nor retrospective (21 statements could not

7 be categorized in terms of time perspective).

8   Lastly, spontaneous statements which were earlier classified in terms of both

9 valence and time perspectives were grouped interactively. Regarding *retrospective-*

10 *negative statements* (*n* = 98), some resembled internal-controlled attributions of failure

11 (e.g., "I played bad" or "We lost because of my fault") and others resembled external-

12 uncontrolled attributions of failure (e.g., "The referee made a mistake" or "I was

13 unlucky"). In regard to *retrospective-positive statements* (*n* = 87), similarly, some

14 statements resembled internal-controlled attributions of success (e.g., "I played well" or

15 "We won because of me") and others resembled external-uncontrolled attributions of

16 success (e.g., "I was lucky to win" or "The opponent missed"). Moreover, only five

17 retrospective statements were classified as neither positive nor negative, because they

18 could not be classified as neither or they could classify as either (e.g., "It is over").

19   Regarding *anticipatory-negative statements* (*n* = 102), negative predictions (e.g.,

20 "We will lose because of me" or "Others will be disappointed with me") and

21 amotivation-related statements (e.g., "I don't want to play" or "I don't care anymore")

22 were identified. In regard to *anticipatory-positive statements* (*n* = 83), similarly,

23 positive predictions (e.g., "I will succeed" or "I can change the game") and motivation-

24 related statements (e.g., "I want to play" or "Pick me") were identified. Moreover, only

1   six anticipatory statements were classified as neither positive nor negative (e.g., "I don't

2   know what will happen").

3   Regarding *present-related and contextual statements*, a total of 53 statements

4   were classified neither anticipatory nor retrospective. Among them there were 38

5   positive and 15 negative. Those statements were further subdivided into present-related

6   statements and contextual statements. The former referred to ongoing events and current

7   feelings and the latter to the *self*, to others and the sport in general. Finally, present-

8   related-positive statements (e.g., "I feel the energy"), present-related-negative

9   statements (e.g., "I feel bad"), contextual-positive statements (e.g., "I am the best") and

10   contextual-negative statements (e.g., "I am a loser") were observed. There were no

11   present-related or contextual statements classified as neither positive nor negative.

12   With regard to the statements' content, links between self-talk categories

13   described in earlier works (e.g., Zourbanos et al., 2009) and spontaneous statements in

14   this study can be identified. For example, some of the statements classified as *positive*

15   *and anticipatory* (e.g., "I can do it") resemble items from the confidence subscale of the

16   ASTQS. Similarly, some negative statements such as "*we will lose because of me*" or "*I*

17   *want to quit*" resemble items from the negative *worry* and *disengagement* subscales of

18   the ASTQS. Moreover, other spontaneous self-talk categories that emerged in this study

19   could be directly linked to several significant research areas in sport psychology, such

20   as motivation and attribution theory. These links further support the importance of

21   spontaneous self-talk in the context of sport.

22   **Conclusions**

23   Overall, this study attempted to explore the structure and content of athletes'

24   self-talk with regard to the goal-directed / undirected distinction (Christoff et al., 2011).

25   Following Gross's (2002) recommendations, emotion-eliciting situations were used to

1 facilitate participants' recalling of self-talk. The use of emotion eliciting situation was

2 expected to further facilitate the purposes of the study because such situations require

3 some sort of emotional regulation. According to the model of emotion regulation

4 outlined by Gross (2001), self-talk in the form of self-directed instructions are typically

5 used for emotional regulation processes. Nevertheless, participants focused their replies

6 on undirected self-talk, thus making it impossible to analyze goal-directed self-talk. A

7 possible reason might be that goal-directed self-talk involves the reaction to undirected

8 self-talk that occurs automatically in emotion elicited situations. Therefore, such

9 statements occur temporally before goal-directed self-talk, which involve 'reacting' to

10 the emotional condition and the intuitively generated undirected statements. As this is

11 only a speculation further research is warranted to explore why this may have happened.

12   Notwithstanding, the results of the present study provide a valuable insight in the

13 undirected self-talk athletes reported. The findings revealed that athletes undirected self-

14 talk is almost exclusively spontaneous, rather than mind-wandering or stimulus-

15 independent. Furthermore, the analysis supported a two-dimensional interactional

16 perspective involving valence and time-perspective. The results provide encouraging

17 evidence for further exploring the goal-directed/undirected distinction in athletes' self-

18 talk. Given the lack of appropriate data in this study to investigate goal-directed self-

19 talk, a second study was designed, using alternative strategies, to surface and

20 subsequently explore the content and structure of athletes' goal-directed self-talk.

21   **Study 2**

22   Since the data from the first study allowed us only to explore the structure and

23 content of undirected self-talk, a second study was conducted aiming specifically to

24 explore athletes' goal-directed self-talk, thus fulfilling the original purpose of the

25 investigation. In the self-talk literature, the deliberate use of self-talk has been studied

1 mostly through the experimental paradigm which examines the performance effects of

2 self-talk as an intervention strategy. Strategic self-talk has been used within this

3 literature to serve a variety of purposes; provide direction for action, such as technical

4 or kinesthetic, to motivate athletes through psyching-up and confidence building, or to

5 regulate emotional states, such as anxiety. A meta-analysis has supported that these

6 interventions have been effective in facilitating learning and enhancing sport

7 performance (Hatzigeorgiadis, Zourbanos, Galanis, & Theodorakis, 2011). However,

8 few studies have attempted to inquire into the use of goal-directed self-talk for

9 performance-enhancement purposes from the automatic self-talk paradigm (Hardy, Hall,

10 & Hardy, 2005). Thus, this second study was particularly aimed to address the

11 weakness of the previous study and enrich the limited evidence regarding non-

12 experimentally induced goal-directed self-talk among athletes.

13   The rational and the methodology in Study 2 were similar to those of Study 1.

14 However, there was a need to target specifically goal-directed self-talk. As goal-directed

15 self-talk is by definition instrumental in nature (Christoff et al., 2011), that is, used to

16 make progress on a task, solve a problem, or serve other specific purposes, the question

17 had to focus on what athletes say to themselves to achieve certain goals or outcomes. At

18 the same time it was desirable to minimize reports of undirected self-talk. The use of the

19 emotion eliciting situations places more emphasis on an additional (to performance or

20 outcome goals) type of relevant self-talk, specifically self-talk to regulate the

21 experienced emotions. Therefore it was decided that the stem introducing the question

22 in this second study should have two goal-directed prompts: performance goals and

23 emotional control.

24 **Method**

25 *Participants*

1   Participants were 55 Spanish athletes (45 males, 10 females; M_{age} = 19.73 years,

2   *D.S.* = 2.10) recruited from a sport science university who volunteered to participate to

3   the study. They were members of different individual (athletics, n = 6; tennis, n = 7;

4   swimming, n = 11), and team (basketball, n = 12; soccer, n = 19) sports clubs, and they

5   were at the time competing at national (n = 48) and international (n = 7) level. All

6   participants from Study 2 were different from those in Study 1. The data collection took

7   place during the competitive season.

8   *Procedures*

9   Procedures were the same as in Study 1. Again, ethical approval was granted

10   from the first authors' university ethics board and the participants signed the informed

11   consent. All participants received a booklet with written instructions, which was also

12   used to report their responses. The data collection took place in small groups (3-4

13   athletes). Answering time ranged between 20 and 45 minutes.

14   In order to explore a variety of situations, participants were asked to *recall any*

15   *sport-related situation during the last month when they experienced sadness, anger,*

16   *resignation, anxiety, relief, euphoria, confidence and excitement.* Consequently, they

17   were asked to write down what they told themselves so as *to improve their performance*

18   *or to control their emotional responses in these situations.* This instruction was more

19   specific compared to the one used in the first study (to write down things they said to

20   themselves or thoughts that occurred to them) in that it focused particularly on what

21   athletes told themselves specifically towards a goal (improve performance or control

22   emotions), thus limiting the possibility for non-goal-directed self-talk to be reported.

23   Moreover, since it is likely that goal-directed self-talk does not appear in all emotion-

24   eliciting situations (e.g., an athlete may say nothing to him/herself if everything goes

25   perfect and the he/she feels euphoria), participants were instructed not to provide any

1   answers if they could not recall any relevant self-statements. The order of the emotion

2   concepts in the booklet was counterbalanced.

3   *Analysis*

4   The data analysis followed the same steps as in Study 1. In the preparatory

5   phase, complex answers were broken down into single text units by the first author.

6   Subsequently, an independent judge was asked to screen the pool of text units and

7   eliminate statements that she perceived as redundant or incomprehensible.

8   In the first stage, three individuals who were not involved in the study at the

9   time were asked to distinguish between goal-directed and undirected statements, in

10   accordance to the definitions offered by Christoff et al. (2011). The judges were

11   members of sport science faculties teaching modules related to research methodology,

12   developmental psychology and sport psychology; they all had practical experience with

13   qualitative research methodology. They received the same information as in Study 1

14   and, again, they confirmed that the correspondent guidelines were clear and

15   understandable. On completion, the inter-rater agreement for the statement type was

16   calculated. In case of disagreement, the three judges convened to discuss until

17   agreement was reached.

18   In the second stage, three of the authors of this manuscript analyzed,

19   independently and in group sessions, the underlying dimensions of the previously

20   categorized statements. Two of the authors independently identified potential solutions

21   and, subsequently, engaged, together with the other author, in several reflective

22   discussions. This process of reflection and debate between the researchers was repeated

23   until agreement was reached.

24   Finally, in the third stage two different independent judges, also members of

25   sport science faculties with expertise on qualitative analysis, and the first author

1   categorized all text units into the dimensions that evolved from the previous stage. The

2   raters were explained the meaning of each identified dimension and were presented with

3   examples to better understand the concepts. The inter-rater agreement for the content of

4   self-talk was calculated separately for each identified dimensions. Again, in case of

5   disagreement in either case, the first author and the two judges convened to discuss until

6   agreement was reached.

7   **Results and Discussion**

8   No participant reported problems to recall situations for any emotion. After

9   removing redundant and incomprehensible responses, 1171 text units were analyzed.

10   *Stage 1: Statement-type analysis*

11   Firstly, the three judges assessed the statements in regard to the goal-directed

12   and undirected distinction (Inter-rater agreement = 99%). The vast majority of text units

13   were classified as goal-directed statements (n = 1164) and only few as undirected

14   statements ($n = 7$), which supported the manipulation of the question that was asked to

15   participants. The few undirected statements (e.g., "I don't want to play") were excluded

16   from further analyses, because the structure and content of undirected statements was

17   already assessed in Study 1.

18   *Stage 2: The structure of goal-directed statements*

19   The 1164 text units identified as goal-directed were further analyzed for

20   exploring the structure of these statements. The analysis revealed a two-dimensional

21   structure (Figure 2). The statements were organized in a two-dimensional grid based on

22   *time-orientation* and *activation*. In terms of time orientation, the three authors who took

23   part in the data analysis at this stage agreed that the goal-directed text units could be

24   placed on a time-continuum that varied from clearly past-oriented to clearly future-

25   oriented with two in-between intervals (past-present oriented and present-future

1 oriented). Since those four points seem to be overlapping, concise indications had been

2 elaborated to facilitate the subsequent categorization. First, statements should have been

3 classified as *past-oriented* if they aim at dealing with cognitive reactions to outcomes

4 that lie in the past (e.g., "It's not your fault"). Second, statements should have been

5 classified as past-present oriented (i.e., *on the brick between past and present*) if they

6 aim at dealing with affective states which started in the past and endured till the time the

7 statement was made (e.g., "Don't be sad"). Third, statements should have been

8 classified as present-future oriented (i.e., *on the brick between present and future* if they

9 are thought to be accompanied by, relatively, enduring changes in behavior (e.g.,

10 "Control the ball") and affective states (e.g., "Let's go!"). Finally, statements should

11 have been classified as *future-oriented* if they aim at focusing on positive outcome of

12 events that lie in the future (e.g., "You will win").

13   *Activation* differentiated self-talk which referred to activated states and

14 deactivated states. Regarding activation, some statements aimed at controlling or

15 creating affective states. Some of those affective states could be classified as

16 *deactivated* states (e.g., sadness) and others as *activated* states (e.g., anger).

17 Consequently, statements aiming at controlling or creating activated states (e.g., "Don't

18 de angry" and "Be strong", for controlling and creating states, respectively) and

19 statements which aimed at controlling or creating deactivated states (e.g., "Don't be

20 sad" and "Calm down", for controlling and creating states, respectively) were identified.

21 Moreover, statements were classified as *neutral in terms of activation* when the content

22 was unrelated to activation (e.g., "Control the ball"). It should be noticed that in this

23 study a valence dimension was not included, because, by definition, all goal-directed

24 statements are meant to be facilitative.

25 *Stage 3: The content of goal-directed statements*

1   To confirm the structure and explore the content of goal-directed self-talk as a

2 function of the identified dimensions, the 1164 goal-directed self-talk units were

3 categorized in terms of time-orientation and activation by the first author and the two

4 judges. They were explained the categories that emerged of the previous stage. Inter-

5 rater agreement in the classification of text units was 88% for time-orientation and 90%

6 for activation. In regard to the latter, a relatively high percentage of inter-rater

7 agreement indicates that the aforementioned indications have helped the judges to

8 overcome potential confusions caused by the apparently overlapping categories; thus the

9 differentiation was considered meaningful. After the three judges reached consent, goal-

10 directed statements which were earlier classified in terms of both time-orientation and

11 activation were grouped interactively into seven types of statements: past-oriented,

12 dealing with cognitive reactions ($n = 43$), past/present-oriented, controlling activated

13 states ($n = 39$), past/present-oriented, controlling deactivated states ($n = 67$),

14 present/future-oriented, creating activated states ($n = 223$), present/future-oriented,

15 creating deactivated states ($n = 127$), present/future-oriented, regulating behavior ($n = $

16 376), and future-oriented, focusing on positive predictions ($n = 289$).

17   *Past-oriented statements dealing with cognitive reactions.* Almost all statements

18 included in this category accompanied negative emotional experiences such as sadness

19 or anger (e.g., "Not everything can go the way you want to" or "Nothing happened").

20 However, some statements accompanied positive emotional experiences such as

21 euphoria or relieve (e.g., "You are no Michael Jordan" or "Even you won today, you

22 have also been the loser many times"). In both general and sport psychology, such

23 cognitive reappraisal concerning real, perceived, or even anticipated negative outcomes

24 has been considered an effective cognitive coping strategy (e.g., Uphill, McCarthy, &

25 Jones, 2009). Psychological methods using similar mechanisms, such as re-attributional

1   training, have been shown to be effective in changing athletes' attributions and

2   increasing self-efficacy in following tasks (Allen, Jones, & Sheffield, 2010). To the best

3   of the authors' knowledge, such type of goal-directed self-talk has not been previously

4   considered in the automatic self-talk paradigm.

5   *Past/present-oriented statements controlling activated states.* Most statements

6   included in this category accompanied negative-activated emotional experiences such as

7   anger and anxiety (e.g., "Don't be afraid" or "Don't suffer"). Nevertheless, few

8   statements also accompanied positive-activated emotional experiences such as euphoria

9   or excitement (e.g., "Don't go too far" or "Don't let the emotion get in your way").

10   Altogether, most statements included into this category referred to awareness of a –

11   potentially – detrimental state. This *awareness* was considered by some the first step in

12   attaining emotional control (Barrett, Gross, Christenson, & Benvenuto, 2001; Ravizza,

13   2001). Accordingly, this *self-awareness* has been identified as a fundamental skill for

14   athletes and as an important antecedent of effective self-regulation and success (Vealey,

15   2007). In regard to previous taxonomies used in the automatic self-talk paradigm, this

16   type of goal-directed self-talk would fit in the *anxiety control scale* of the ASTQS

17   (Zourbanos et al., 2009) which contains items such as *don't get upset* or *no stress*.

18   *Past/present-oriented statements controlling deactivated states.* Statements in

19   this category were very similar to those of the aforementioned one, however opposed in

20   activation. Most statements accompanied negative-deactivated emotional experiences,

21   such as sadness or resignation (e.g., "Don't give up or "Don't be sad") and some

22   accompanied positive-deactivated emotional experiences such as relieve or confidence

23   (e.g., "Don't relax" or "Don't lower the rhythm"). However, as opposed to the previous

24   category, such type of goal-directed self-talk has not been previously considered in the

25   automatic self-talk paradigm.

1   *Present/future-oriented statements creating activated states.* According to our

2 results these statements do not necessarily relate to certain types of emotions and aim at

3 promoting, exclusively, positive-activated states (e.g., "Continue!" or "Give a 100%").

4 In the sport psychology literature this type of self-talk has been traditionally called

5 motivational self-talk (e.g., Theodorakis et al., 2000). Experimental research has

6 supported the positive effects of motivational cue words on sport performance

7 (Hatzigeorgiadis et al., 2014) and performance-related outcomes (Kolovelonis, Goudas,

8 & Dermitzaki, 2011). With regard to previous taxonomies used in the automatic self-

9 talk paradigm, this type of goal-directed self-talk would fit in the *psych up scale* of the

10 ASTQS (Zourbanos et al., 2009) which contains items such as *let's go* or *give 100%*.

11   *Present/future-oriented statements creating deactivated states.* These statements

12 accompanied activated emotional experiences, such as anxiety, anger, excitement and

13 euphoria, and aim at promoting, exclusively, positive-deactivated states (e.g., "Calm

14 Down" or "Patience"). With regard to the effects of these statements, cue words such as

15 *relaxed* or *calmly* were perceived by athletes as anxiety reducing and showed beneficial

16 effects on variables such as performance, cognitive interference, and cognitive anxiety

17 (Hatzigeorgiadis, Zourbanos, & Theodorakis, 2007). However, the effects of

18 *deactivating* cue-words have received much less research attention compared to the

19 *activating* cues discussed in the previous category. With regard to previous taxonomies

20 used in the automatic self-talk paradigm, this type of goal-directed self-talk would fit in

21 the *anxiety control scale* of the ASTQS (Zourbanos et al., 2009) which contains items

22 such as *relax* or *calm down*. Consequently, these results suggest that the *anxiety control*

23 *scale* of the ASTQS contains both Past/present-oriented statements controlling activated

24 states and Present/future-oriented statements creating deactivated states.

1   *Present/future-oriented statements regulating behavior.* Statements included in

2   this category seem to be unrelated to specific emotions and varied from general

3   cognitive control (e.g., "Concentrate" or "Pay attention") to task-specific statements

4   (e.g., "Pass the ball" or "Defense"). In the sport psychology literature this type of

5   statements have been called instructional self-talk, and have proven effective in

6   facilitating learning and enhancing performance (e.g., Zourbanos, Hatzigeorgiadis,

7   Bardas, & Theodorakis, 2013). With regard to previous taxonomies used in the

8   automatic self-talk paradigm, this type of goal-directed self-talk would fit in the

9   *instruction scale* of the ASTQS (Zourbanos et al., 2009) which contains items such as

10   *focus on your technique* or *concentrate*.

11   *Future-oriented statements focusing on positive predictions.* Statements included

12   in this category referred to reinforcing self-efficacy (e.g., "You will succeed" or

13   "Everything is going to be fine"), self-esteem (e.g., "Believe in yourself" or "You are

14   good") and motivational orientation (e.g., "Show them how good you are" or "Score

15   another goal"). In the literature, self-confidence and self-efficacy (e.g., Short & Ross-

16   Stewart, 2009), as well as confidence cue words, (e.g., Hatzigeorgiadis et al., 2009)

17   have been related with performance enhancement and well-being. In regard to previous

18   taxonomies used in the automatic self-talk paradigm, this type of goal-directed self-talk

19   would fit in the *confidence* scale of the ASTQS (Zourbanos et al., 2009) which contains

20   items such as *I believe in me* or *I can make it*.

21   A final observation worthy of mentioning was made concerning participants'

22   answers in the two studies. In particular, whilst most statements in Study 1 were written

23   in the first person (77%), in Study 2 more instructions were written in second person

24   (50%) than in first (26%; the rest of the statements had none). These second person self-

25   statements phenomenon has received special attention in psychology literature, where it

1   has been called *fragmented self-talk* (for more details see, Zell, Warriner, & Albarracin,

2   2012). This is something that should be further explored regarding athletes self-talk.

3   Interestingly, considering in addition the results of the first study, goal-directed

4   self-talk was largely revealed when a more restrictive research question was posed

5   asking participants to report what they say to themselves to achieve certain goals or

6   outcomes. As previously postulated, goal-directed self-talk may involve the reaction to

7   undirected self-talk that occur spontaneously in emotion-elicited situations. This

8   proposition requires further attention, as it is possible that automatic goal-directed self-

9   talk may occur when there is a *reason* (spontaneous, evaluative self-talk), in contrast to

10   strategic goal-directed self-talk which is planned/pre-determined.

11   Altogether, we managed to describe seven main categories of goal-oriented

12   statements and place them in a two-dimensional cluster. With regard to the study of

13   goal-directed self-talk in sport psychology, the present results suggest that the structure

14   of intentionally used self-statements goes far beyond the distinction between

15   instructional and motivational self-talk. Consequently, future studies should inquire into

16   the effects of those different types of goal-directed self-talk on performance and

17   performance-related outcomes.

18   **General Discussion**

19   The purpose of this study was to apply the distinction between goal-directed and

20   undirected thoughts, established in general psychology, in the sport self-talk literature.

21   Ultimately, two studies were conducted: the first explored the structure and content of

22   spontaneous statements, a subtype of undirected self-talk, and the second explored the

23   structure and content of goal-directed self-talk. On the structural level, two different

24   two-dimensional structures were identified to offer simplistic representations of the

25   respective phenomena. Spontaneous statements varied in terms of valence and time-

1   perspective, whereas goal-directed statements varied in terms of the time-orientation

2   and activation. Expectedly, differences were found in the content of participants' self-

3   talk. Spontaneous statements were mostly describing, evaluating and explaining past

4   outcomes, and made predictions concerning upcoming events. Disparately, goal-

5   directed statements involved changing appraisals and affective states and promoting

6   positive affective states, task instructions and positive predictions.

7   In relation to previous studies on the structure and content of self-talk in sport

8   psychology, the present findings encourage a series of general comparisons. Alongside

9   previous research (e.g., Hardy, Hall et al., 2001) we agree that *valence* seems to be a

10   relevant self-talk dimension, but only for spontaneous self-talk. Many of the

11   participants' spontaneous statements matched or were similar to those accommodated in

12   the positive and negative self-talk scales of the ASTQS (Zourbanos et al., 2009),

13   whereas goal-directed statements only matched items from the positive ASTQS scales.

14   Several self-talk statements that emerged in this study do not fit in previously identified

15   self-talk categories. However, this is not surprising given that previous studies were

16   conducted on a contextual level (Hardy, Gammage, et al., 2001; Hatzigeorgiadis &

17   Biddle, 2000; Zourbanos et al., 2009) whereas our study examined self-talk in specific

18   situations.

19   Another dimension that emerged for both goal-directed and undirected self-talk

20   involved the frame of time. Two different terms were employed to reflect the time

21   dimension in the two studies. With regard to spontaneous self-talk, *time-perspective*

22   discriminated between anticipatory, present-related, contextual and retrospective

23   statements based on their *referent*. In other words, statements were classified and

24   accordingly termed based on whether they referred to something that happened in the

25   past, or is happening at the time, or is expected to happen in the future. The term time-

1   perspective has also been used to discriminate between anticipatory and retrospective

2   emotions (Latinjak, 2012). With regard to goal-directed statements, the term time-

3   orientation was employed to reflect *the purpose or the function* of the direction provided

4   by the statement. Accordingly, the statements were described as past, past-present,

5   present-future, or future oriented, depending on whether the statements were directed

6   towards (a) cognitions about events that lie in the past, (b) affective states that emerged

7   at some point in the past and endure until the present, (c) the formation of cognitive or

8   affective states that appear at the moment and endure until some point in the future, or

9   (d) expectations about the future.

10   Despite the relative difficulty of categorizing self-talk into the dimensions of

11   time perspective, the identification of the time perspective (per se) is of considerable

12   value and can provide guidance for future research. Even though the frame of time has

13   not received particular research attention in the sport self-talk literature, an interest in

14   the time perspective of athletes' self-talk can be identified from the early days of self-

15   talk research in sport. Weinberg (1988) identified that positive self-talk helps keep the

16   athlete's focus of attention in the present, not on past errors or the distant future. The

17   beneficial effects of present-related attentional focus have also received indirect

18   empirical support. For example, concentrating on what currently doing is among the

19   potential functions of self-talk (Functions of Self-Talk Questionnaire; Theodorakis,

20   Hatzigeorgiadis, & Chroni, 2008). Similarly, focusing on what needs to be

21   accomplished is among the instructions athletes give to themselves (ASTQS; Zourbanos

22   et al., 2009). Moreover, using self-talk to focus on the present is among the potential

23   aspects of self-talk (ODP Soccer Self-Talk Practices Questionnaire; Burton, Gillham, &

24   Glenn, 2011). Lastly in two experimental studies, Latinjak, Torregrosa and Renom

25   (2010b, 2011) classified tennis players' automatic thoughts into present-related

1 *execution-thoughts* and past or future-related *outcome- thoughts*. Generally, their results

2 indicated that the former were more beneficial for performance than the latter.

3 Altogether, these studies support further efforts to inquire into the time-perspective of

4 athletes' self-talk. Overall, in this investigation, the time dimension appears to be

5 effective in explaining differences in both goal-directed and undirected self-talk. As this

6 is a newly explored dimension into the self-talk literature further research is warranted

7 to establish its integrity.

8   As a whole, the goal-directed/undirected framework seems to efficiently

9 accommodate findings from the sport self-talk literature. In addition, new perspectives

10 regarding the structure of athletes' automatic self-talk were explored. In line with

11 Hardy's (2006) considerations about the importance of precise definitions of concepts in

12 social sciences, the distinction raised in this study could enhance our understanding of

13 athletes' self-talk and eventually help improving the operational definition of self-talk in

14 sport. A more comprehensive definition could eventually contain the distinction of goal-

15 directed and undirected self-talk as an integral feature of automatic self-talk, but also

16 identify the distinction between the automatic and the strategic use of goal-directed self-

17 talk.

18   Several aspects of this investigation require particular consideration as they

19 reflect potential limitations. First, with regard to the thought sampling method,

20 following the recommendations of Gross (2002), it was decided to use emotion concepts

21 to identify a series of different situations in sport. Generally, it appears from the volume

22 of obtained data that the use of emotion concepts helped participants recalling different

23 relevant sport situations and their self-talk in those situations. However, it could be

24 argued that asking participants to recall only emotionally relevant situations, as opposed

25 to common or routine situations, may have restricted the content of undirected and goal-

1   directed self-talk and may explain why they mostly reported spontaneous self-talk and

2   few instances of stimulus-independent thoughts and mind-wandering. Thus, this

3   decision may have limited the breadth of answers and thus the content of reported self-

4   talk. Having said that, it is also likely that this type of thoughts is prevalent in sport, and

5   in particular during competition. Therefore, the exploration of unrelated thoughts and

6   mind-wandering needs to be further researched in sport.

7   Another decision that had to be taken involved the specific emotion concepts

8   that would be used for the emotion-eliciting situations. Eight emotion concepts which

9   have been shown to represent a wide range of emotion experiences in a

10 multidimensional fashion (Latinjak et al., 2014) were chosen. The restricted number of

11 emotions used may have also limited the potential answers in volume of self-talk.

12 However, Ekkekakis (2013) recommends the dimensional approaches for studies

13 interested in a wide range of emotions. Furthermore, not all possible emotions could be

14 used, as such a list would possibly detract participants' attention and would be very

15 demanding and tiring for them to consider.

16   The time range of one month was chosen because it was estimated long enough

17 so that all eight emotions could have been experienced at least once. Thinking aloud

18 techniques employed during competition or thought listing techniques employed

19 immediately after competition were not considered at this stage of research because the

20 overall aim was to assess self-talk in a wide range of situations. It seems probable that

21 the variety of emotion-eliciting situations would be narrower during one competition

22 and wider during several training sessions and competitions in a month. Further, a larger

23 range of time was considered meaningless because time alters the athletes' memory

24 significantly (Ayhan & Isiksal, 2004).

1   In line with these methodological considerations, the thought sampling method

2   that was used was considered a more formal method of introspection (Boring, 1953).

3   Introspection methodologies have been traditionally seen as a mean to conduct

4   preliminary surveys (Lashey, 1923). Consequently, future studies should opt for

5   different methodologies, for example thinking aloud routines (Ericsson & Simon, 1993),

6   which will allow for verification of the findings of the present study, and possibly a

7   more in-depth insight. Evidently, there are several shortcomings related to thought

8   sampling procedures in general (Nisbett, & Wilson, 1977) and, inevitably, in this study

9   in particular. However, the volume of the raw data, and the fact that the data concur in

10 content with evidence from previous studies regarding the content of self-talk (e.g.,

11 Hardy et al., 2001; Zourbanos et al., 2009), strengthen our confidence and provide

12 indirect support for the integrity of the thought sampling procedure.

13   Second, the present findings are exploratory. The two-dimensional structure that

14 emerged in both studies could lack specificity, or a different structure could constitute a

15 simpler or more useful model. As already mentioned, both structures were presented to

16 provide a simplistic representation of the athletes' self-statements. A broader research

17 scope could be used to further advance our knowledge about self-talk, and to address

18 the limitations of this study. In this study the statements were analyzed based on their

19 content, for which reason the judges were at times unable to categorize some statements

20 as undirected or goal-directed. An analysis of self-talk from a *pragmatic perspective*

21 would take into consideration the functions, the intentions and the context of language,

22 besides its content (e.g., Levinson, 1983). Participants' evaluation of the researchers'

23 ratings and classifications was not received due to the size of the sample that was

24 targeted for the purposes of this study. Such a procedure would have allowed to

25 categorize the questionable statements in Study 1, but also to increase the

1   trustworthiness and credibility of our results (Antonini-Phillipe, Sagar, Huguet, Paquet,

2   & Jowett, 2011). However, a post-hoc focus groups with 8 participants provided

3   supportive evidence for the interpretations that were made[1]. Moreover, one might take

4   into account that this was the first study conducted to explore differences between goal-

5   directed and undirected self-talk in sport. Moreover, opting for a relatively large number

6   of participants representing a variety of sports and levels, made such feedback

7   procedures impractical.

8   Evidently, a lot remain to be further discussed regarding the structure and the

9   nature of the self-talk dimensions in sport, as these emerged from this study but also

10 from the relevant sport literature.

11   **Conclusions**

12   The investigation attempted to explore an innovative perspective into the study

13 of self-talk in sport psychology. The present findings may eventually have a significant

14 impact on the understanding of self-talk with important implication for the theoretical,

15 research, and applied levels. From a theoretical standpoint, the findings introduce the

16 distinction between goal-directed and spontaneous self-talk and yield a new direction

17 for the conceptualization and operationalization of self-talk through the identification of

18 taxonomies that have not been previously considered in the sport literature, namely

19 activation and time-perspective.

20   Elaborating on these perspectives can help enhancing our understanding and

21 provide more accurate and comprehensive definitions of the self-talk phenomenon in

22 sport. Research wise, the present findings create new paths for extending the self-talk

23 literature. Future research could further explore the identified dimensions of time-

24 perspective and activation, looking into activating and de-activating effects of

25 anticipatory and retrospective self-talk, shed more light into the unexplored mind-

1   wandering and stimulus-independent self-talk, and investigate temporal patterns

2   regarding the occurrence of undirected and goal-directed self-talk. Finally, at the

3   applied level the more comprehensive understanding of self-talk will help developing

4   more effective interventions taking under consideration the nature of self-talk in terms

5   of direction (undirected/goal directed), but also the time and activation perspectives in

6   relation to situational and individual needs. Overall, we believe that the present

7   investigation provides valuable and promising evidence for the development of the self-

8   talk literature and encourages further research towards the identified research directions.

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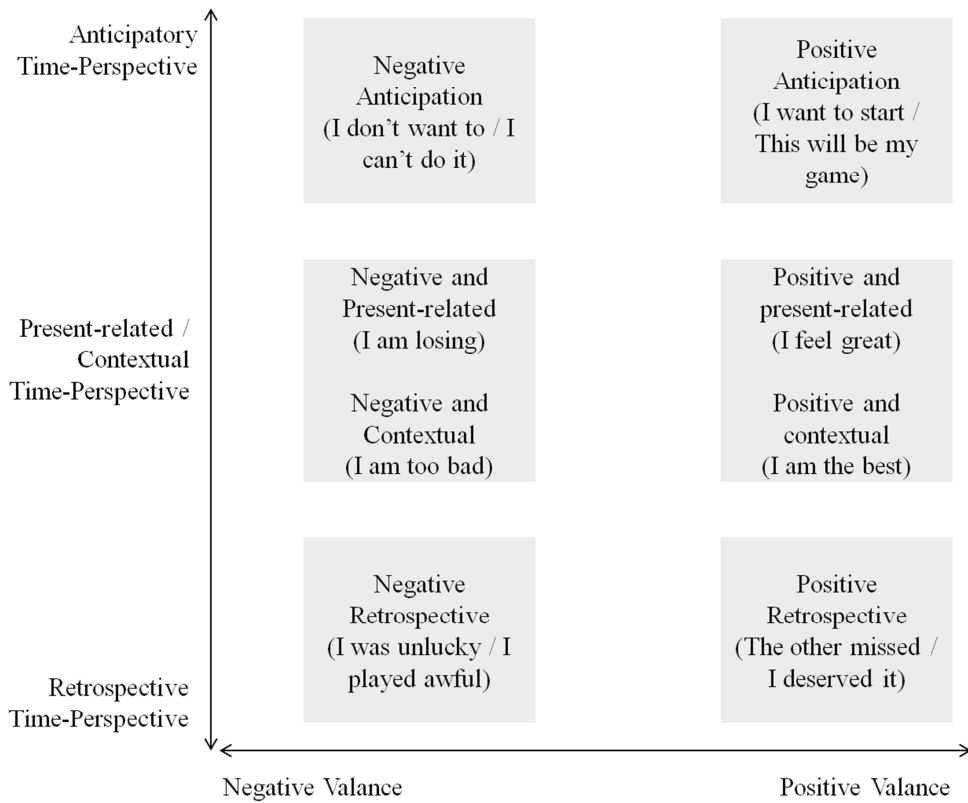24   *99*(4-6), 308-317. doi:10.1016/j.jphysparis.2006.03.014

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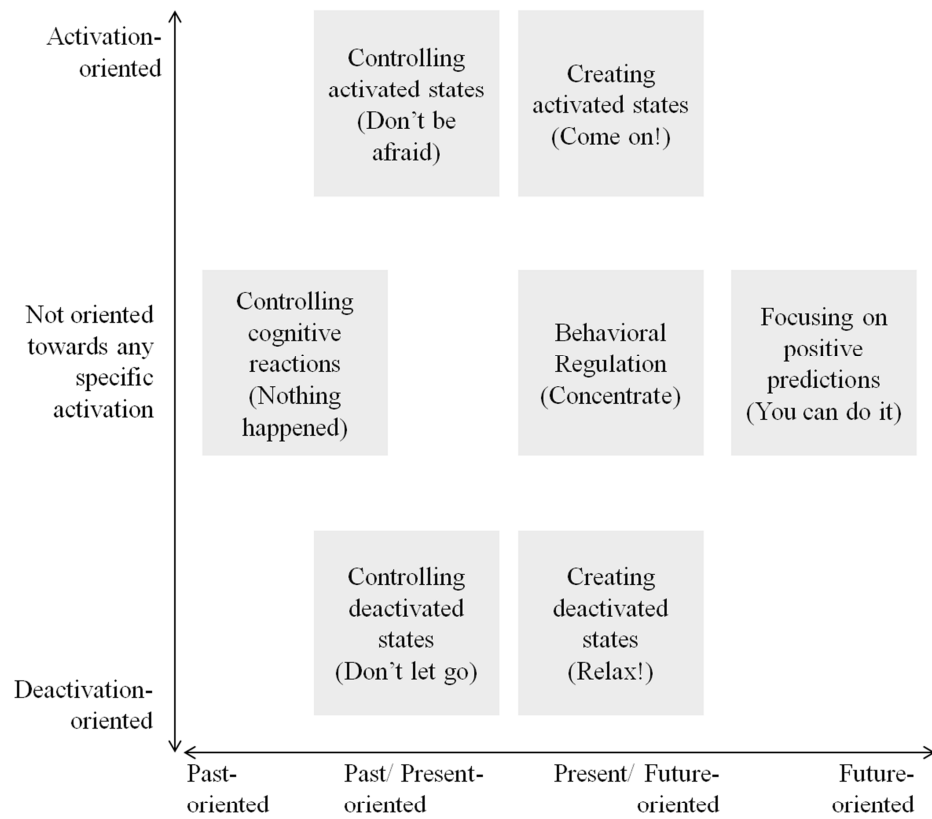
1   Footnotes

2   [1] Eight of the participants (two males and two females from Study 1; three males

3   and one female from Study 2; M_{age}= 20.63 years, *S.D.* = 1.69) were contacted and

4   formed a post-hoc focus group to discuss the degree to which the results of the study

5   reflected their perspectives. Participants of this focus group were first asked to recall

6   the situations and the answers they provided. Upon recall, they were informed about the

7   purpose, the procedures, and the results of this study. Subsequently, they were asked to

8   evaluate with regard to their perceptions and their answers (a) the relevance of

9   categorizing self-talk as goal-directed and undirected, and (b) the adequacy of the

10   identified sub-dimensions to describe self-talk in sport settings, with particular emphasis

11   on their perceptions regarding the time perspective. Lastly, participants were asked to

12   make any further comments on the results of this study. Participants of the focus group

13   supported the difference between undirected and goal-directed self-talk, and

14   acknowledged the relevance of the sub-dimensions that were identified. Furthermore,

15   participants agreed on the existence of a time perspective in their self-talk, ie. that they

16   talk to themselves with reference to past events, mostly in an evaluative way, but also

17   with regard to future situations. With regard to time perspective in undirected self-talk,

18   the participants argued that "the distinction between future, present and past-related

19   thoughts is most important since it denotes weather your attention is on the task or not".

20   They further specified that "future-related thoughts are appropriate, especially but not

21   exclusively, when they are positive prior to competition. Present-related thoughts, either

22   positive or negative, are appropriate right before and during the competition. Lastly,

23   past-related thoughts are necessary when they appear after competition to learn from

24   past experiences". Concerning time perspective in goal-directed self-talk, the

25   participants of the focus group debated about the effects of past/present-oriented and

1   present/future-oriented self-instructions. They suggested that "most of the time we use

2   past/present-related instructions such as *don't be angry* but they don't help us at all

3   because we only focus on being angry". Disparately, they explained that

4   "present/future-oriented self-talk would be more helpful because it focuses on how one

5   should feel or what one should think about". In regard to past-oriented and future-

6   oriented self-instructions, they assumed that they can have "a bad effect on performance

7   because they distract you from what you are doing". However, "at some point they can

8   help you because they give self-confidence". Finally, they argued that beyond the

9   dimensions discovered in this study, "it is important to measure the intensity of one's

10   undirected thoughts and the belief one has in his goal-directed instructions". They

11   argued that "some thoughts are so intense that you can't take them out of your mind"

12   and that "sometime you tell yourself something but you don't really belief it". Overall,

13   this focus group provided support the findings of the present study and suggested

14   additional directions for future research.

15

1 Figure 1. A simplistic representation of spontaneous statements based on two

2 dimensions (valence and time-perspective) and six categories (examples for each

3 category are indicated in parenthesis).

4

5 Figure 2. A simplistic representation of goal-oriented statements based on two

6 dimensions (time-orientation and activation) and seven categories (examples for each

7 category are indicated in parenthesis).

8

Anticipatory
Time-Perspective

Negative
Anticipation
(I don't want to / I
can't do it)

Positive
Anticipation
(I want to start /
This will be my
game)

Present-related /
Contextual
Time-Perspective

Negative and
Present-related
(I am losing)

Negative and
Contextual
(I am too bad)

Positive and
present-related
(I feel great)

Positive and
contextual
(I am the best)

Negative
Retrospective
(I was unlucky / I
played awful)

Positive
Retrospective
(The other missed /
I deserved it)

Retrospective
Time-Perspective

Negative Valance

Positive Valance

Activation-
oriented

	Controlling activated states (Don't be afraid)	Creating activated states (Come on!)	

Not oriented towards any specific activation

| Controlling cognitive reactions (Nothing happened) | | Behavioral Regulation (Concentrate) | Focusing on positive predictions (You can do it) |

Deactivation-
oriented

| | Controlling deactivated states (Don't let go) | Creating deactivated states (Relax!) | |

| Past-oriented | Past/ Present-oriented | Present/ Future-oriented | Future-oriented |

- There were differences between spontaneous self-talk and goal-directed self-talk.
- Spontaneous self-talk was structured in terms of valance and time perspective
- Goal-directed self-talk was structured in terms of activation and time-orientation