



University of Thessaly

Department of Physical Education and Sport Sciences

Greece

Exploring the differentiation of goal-directed and undirected self-talk between the parts of the training and towards an upcoming event. A case study, following up the preparation week for a soccer game

by

Bouloumpasis Vasileios

Approved by supervising committee:

Supervisor Dr Nikolaos Comoutos, PhD

Advisor 1 Dr Antonios Hatzigeorgiadis, PhD

Advisor 2 Dr Alexander Tibor Latinjak, PhD

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The author of this thesis had a great amount of help from Dr. Nikos Comoutos

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Bouloumpasis Vasileios

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Abstract

The aim of the present study was to explore the differentiations that occur to athletes' goal-directed and undirected self-talk, between the different parts of training and towards the upcoming competition. A case study approach was selected. The participants were eleven footballers (*Mean*= 18.55 years, *SD*= .69) from a Greek U19's team, competing in the first national division. Both quantitative and qualitative approach was used. A probe-caught method was used to acquire quantitative data during the training session. As for qualitative data, participants were asked to write down their self-statements after the end of the training session. Categorization and analysis of the statements was based on the framework proposed by Latinjak, Zourbanos, Lopez-Ros, & Hatzigeorgiadis (2014). The quantitative analysis revealed significant differences in footballers' goal-directed self-talk and mindwandering between the different parts of the training (with and without ball implantation). Specifically, goal-directed was increased when the ball was implemented, whereas mindwandering was dominating when the ball was not implemented in the training. No differentiation occurred in relation to the upcoming competition. Qualitative data analysis revealed that the majority of athletes' spontaneous statements had negative valence, with present-related/ contextual negative statements to be the dominating category, while for goal-directed self-talk, the majority the statements were classified in the following three categories: Present/future-oriented statements creating activated states, present/future-oriented statements regulating behavior and cognition and Future-oriented statements.

Master Thesis

INTRODUCTION.....	1
LITERATURE REVIEW.....	2
Definitions and conceptualizations of self-talk.....	2
Automatic/ organic self-talk.....	5
Strategic self-talk.....	5
Spontaneous & Goal-directed self-talk.....	6
Ongoing dialogue on Organic self-talk.....	7
Sport specific self-talk models.....	8
Self-talk measures in sport.....	9
Mindwandering.....	11
<i>Studies of mindwandering in sport psychology.....</i>	13
Spontaneous self-talk.....	14
<i>Studies of spontaneous self-talk in sport psychology.....</i>	16
Goal-directed self-talk.....	17
<i>Studies of goal-directed self-talk in sport psychology.....</i>	19
The present study.....	22
METHOD.....	23
Participants.....	23
Procedures.....	23
Data analysis.....	23
RESULTS.....	25
Quantitative results.....	25
Qualitative analysis.....	31

DISCUSSION.....	38
LIMITATIONS.....	42
PRACTICAL IMPLICATIONS.....	43
FUTURE RECOMMENDATIONS.....	43
REFERENCES.....	44
APPENDIX.....	52

Introduction

The roots of sport psychology are dated to the ancient times. With the start of the Olympic Games around 776 BCE, the ancient Greeks embraced the mind–body connection and discussed both physical and mental preparation of athletes. In fact, the ancient Greeks are said to be among the first to systematically explore athletic performance with much of the work paralleling modern-day study in the areas of sports medicine and sport psychology (Gould & Voelker, 2014). But, like most fields, the historical development of sport and exercise psychology did not follow a smooth and continuous pattern. In fact, it was no earlier than the middle of 19th century, when the foundations of separating psychology as an “experimental” science, from the “subjective” philosophy, were set (Vealey, 2006). The foreshadowing of sport and exercise psychology as we know it today, is placed between 1885 and 1920, when the first professionals in psychology and physical education were writing of the psychological benefits of physical activity, including exercise to combat depression (Franz & Hamilton, 1905) and physical education (Hall, 1908) and sport (Kellor, 1898; Scripture, 1899) to enhance character and mental culture (Vealey, 2006).

Historically, self-talk is a phenomenon that concerned experimental psychology from its early beginnings. In fact, research started to explore the nature and function of inner speech and the things people say to themselves from the 1880’s (Reed, 1916). In the field of sport psychology, self-talk emerged as an area of research focus during the cognitive revolution of 1970s, when researchers began to consider ways in which the thinking of athletes influenced performance and experiences in sport (Williams & Straub, 2006; Van Raalte & Vincent, 2017). The beginning of the systematic research of self-talk in sport is placed between 1980 and

1990 (e.g., Van Raalte, Brewer, Rivera, & Petitpas, 1994; Weinberg, Smith, Jackson, & Gould, 1984). During this period, a lot of research progress has been done, creating a respective and maturing body of literature, examining self-talk in sports, although, it is probably still the case that research on self-talk is relatively underdeveloped as compared to the empirical literatures associated with other common psychological skills (e.g., mental imagery and goal setting) (Hardy, Comoutos, & Hatzigeorgiadis, 2018).

One of the latest developments on the field, is the conceptualization of organic self-talk (Latinjak, Hatzigeorgiadis, Comoutos, & Hardy, 2019) previously known as automatic (Zourbanos, Hatzigeorgiadis, Chroni, Theodorakis, & Papaioannou, 2009) and spontaneous self-talk (Van Raalte, Cornelius, Copeskey, & Brewer, 2014), as well as the categorizations which emerge in it; goal-directed and spontaneous self-talk (Latinjak, Zourbanos, Lopez-Ros, & Hatzigeorgiadis, 2014). Considering the growing body of literature examining this conceptualization and the impact that has on self-talk research, it is important to contribute to its deeper enlightening.

Literature review

Definitions and conceptualizations of self-talk

Hardy (2006), highlighted that in the early years of self-talk literature, the proposed definitions were ranged from the most infrequently proposed combining of cognitive and behavioral aspects, to the more common, purely cognitive based. In fact, definitions such as “internal dialogue to oneself” (Moran, 1996), or “speaking to ourselves, thinking, one of the components of consciousness” (Henschen & Straub,

1995) confirm the above assertion, about the cognitive based definitions.

Theodorakis, Weinberg, Natsis, Douma, and Kazakas (2000), moving on the same wavelength, defined self-talk as “what people say to themselves either out loud or as a small voice inside their head”. Hackfort and Schwelkmeier (1993, p. 335), from a more inclusive point of view, defined self-talk as “an internal dialogue in which the individuals interpret feelings and perceptions, regulate and change evaluations and cognitions and give themselves instructions and reinforcement”, alluding to behavioral aspects as well. Hardy (2006), taking into consideration the previous findings on the field, proposed a working definition, which demarcated the framework of self-talk, providing guidelines for future research. Specifically, he defined self-talk as: “(a) verbalizations or statements addressed to the self; (b) multidimensional in nature; (c) having interpretive elements association with the content of statements employed; (d) is somewhat dynamic; and (e) serving at least two functions; instructional and motivational, for the athlete”. This definition has put together the important findings of the field, by that time, providing a comprehensive description of the overlapping aspects that constitute self-talk. He identified the frequency dimension (how often athletes use self-talk), as long as the overtness dimension (whether it is said overtly or covertly), which both refer to the nature of self-talk. Referring to the self-talk’s content, he identified the valence dimension (statements are included within a spectrum, from positive to negative) and the motivational interpretation dimension, which refers to whether athletes perceive the content of their statements motivational or de-motivational. Finally, he alludes to the functions of self-talk, which can be either instructional, or motivational.

Over a decade after Hardy’s (2006) working definition, a lot of progress has done in the field, through which new definitions were developed. Hatzigeorgiadis, Zourbanos,

Latinjak, and Theodorakis (2014, p. 372) described self-talk as “what people say to themselves either silently or aloud, inherently or strategically, to stimulate, direct, react and evaluate events and actions”. Hardy and Zourbanos (2016, p. 450) defined self-talk as “statements, phrases or cue words that are addressed to the self which might be said automatically or very strategically, either out loud or silently, phrased positively or negatively, having an instructional or motivational purpose, an element of interpretation, and incorporating some of the same grammatical features associated with every day speech”. Van Raalte, Vincent and Brewer (2016) added to the previous definitions, proposing that “self-talk can be defined as an act of syntactically recognizable communication in which the sender of the message is also the intended receiver”. Recently, Latinjak, Hatzigeorgiadis, Comoutos, and Hardy (2019), proposed an integrative definition, by summarizing the progress of the field, stating that “Self-talk takes form in verbalizations addressed to the self, overtly or covertly, characterized by interpretative elements associated to their content; and it either (a) reflects dynamic interplays between organic, spontaneous and goal-directed, cognitive processes or (b) conveys messages to activate responses through the use of predetermined cues developed strategically, to achieve performance related outcomes.”

Comparing the latter definitions to the previous ones, we can definitely discern new conceptualizations, that derived from recent developments which were made during the past few years and expanded our way of examining self-talk. The first development that is discrete in these definitions, is the distinction between two self-talk entities that were initially reflected in two different research perspectives (Theodorakis, Hatzigeorgiadis, & Zourbanos, 2012).

Automatic/ Organic Self-talk

The first entity which was firstly described as “automatic self-talk” (Zourbanos et al., 2009) and “spontaneous” (Van Raalte et al., 2014), reflects self-talk as inherent thoughts and self-statements athletes address to themselves (Latinjak et al., 2019). Van Raalte et al., (2016) identified an intuitive type of self-talk (also called, System I self-talk) that comes to mind spontaneously and focuses awareness on current experiences, and represents the immediate, emotionally charged reaction to a situation. Latinjak et al. (2019) preferred to describe the entity by the term “organic self-talk”, for two reasons: Firstly, it can be defined as characteristic of, pertaining to, or derived from living organisms and secondly, both “automatic” and “spontaneous” could lead to misunderstandings, as this terminology is also used in general psychology in relation to uncontrolled cognitive processes. In this study the term “organic self-talk” will be adopted.

Strategic Self-talk

The second entity has been termed strategic self-talk (Theodorakis et al., 2012), which was described as the use of cue words aiming at facilitating learning and enhancing performance, through the activation of appropriate responses, (Hatzigeorgiadis, Galanis, Zourbanos & Theodorakis, 2014) through changes in performance antecedents, such as cognition, motivation, behavior or affect (Hardy, Tod & Oliver, 2009). Van Raalte et al., (2016) described it as a rational type of self-talk based on reason, which is emotionally neutral (also called, System II self-talk). This entity has drawn the researchers’ attention during these years, who created a respectable amount of literature about it, due to its applied value (Galanis, Hatzigeorgiadis, Comoutos,

Charachousi, & Sanchez, 2018). Hatzigeorgiadis, Zourbanos, Galanis, & Theodorakis (2011), released a meta-analysis of a total 32 of self-talk interventions, through which they concluded that self-talk strategies can make a valuable contribution to skill acquisition, learning, and task performance enhancement in sport. Specifically, instructional self-talk, as it has been implemented within literature includes cues aiming at focusing or directing attention (e.g., “see the target”) and providing instruction with regard to technique (e.g., “bend the knee”), strategy (e.g., “push”), or kinesthetic attributes of a skill (e.g., “smoothly”). Instructional self-talk was more effective for fine tasks than was motivational self-talk and it was more effective for fine tasks rather than gross tasks (Hatzigeorgiadis et al., 2011). This analysis was in line with Theodorakis’ et al., (2000), who stated that instructional self-talk could be more effective for tasks requiring precision and timing. Regarding motivational self-talk, it mostly includes cues aiming at psyching up (e.g., “let’s go”), maximizing effort (e.g., “give it all”), building confidence (e.g., “I can do it”), and creating positive moods (e.g., “I feel good”). The effectiveness of the two self-talk types on performance and the findings suggest that instructional and motivational self-talk may have different effects on task performance (Hatzigeorgiadis, Theodorakis, & Zourbanos, 2004; Theodorakis et al., 2000). In specific Tod, Hardy & Oliver (2011), in their systematic review of the literature, also showed that there are beneficial effects of positive, instructional, and motivational self-talk for performance.

Spontaneous & Goal-Directed Self-talk

The second development emerged within the organic self-talk entity, and refers to the distinctions between spontaneous and goal-directed self-talk (Latinjak et al., 2014).

Their research was based on the framework of goal-directed and undirected thoughts from general psychology. Christoff, Gordon, and Smith (2011) described goal-directed thinking as a mental process deliberately employed towards solving a problem or making progress on a task. Goal undirected thoughts are divided into three sub-categories including mind-wandering, stimulus-independent thoughts and spontaneous thoughts. Mindwandering includes any thought that is unrelated to the ongoing task or activity, thus unrelated to the thought eliciting situation (Klinger, 2009) (e.g. thinking about a school exam during the training session). Stimulus-independent thoughts are related to the context of the activity, yet unrelated to ongoing stimuli a person receives (e.g. thinking about a missed chance in a past game, during the training session). Spontaneous thoughts are unintended, non-working, non-instrumental thoughts that come to mind unbidden and effortless, which are however linked to the task or activity at hand and relevant contextual stimuli (e.g., thinking about how a teammate evaluated your attempt; blaming yourself for a missed scoring chance).

Ongoing dialogue about organic self- talk

The conceptualization of organic self-talk is relatively new, but still it has raised research attention, with an increasing amount of studies which aim to enrich our knowledge about it. However, it has also opened a constructive dialogue between self-talk researchers. The main point of argument seems to be the possible overlap between goal-directed and strategic self-talk. Van Raalte et al. (2016) distinguished intuitive from rational self-talk, embodying strategic self-talk within the latter category. On the other hand, Latinjak and colleagues in their studies distinguish

spontaneous from goal-directed self-talk within the conceptualization of organic self-talk; whereas they place strategic self-talk used in interventions outside of their framework. Of course, when delving deeper into Latinjak and colleagues' concept, we can discern fundamental differences between goal-directed and strategic self-talk, such as the fact strategic self-talk is predetermined and fixed, while the decision to use goal-directed self-talk is a result of the ongoing events. Goal-directed self-talk is never predetermined and the timing of self-verbalizations is never prefixed.

Sport specific self-talk models

As the self-talk literature began to attract increasing academic attention, some researchers argued that a better understanding of the factors that shape and affect athletes' self-talk is essential (Zourbanos, Hatzigeorgiadis, & Theodorakis, 2007). The first development of a working framework for self-talk in sports was provided by Hardy et al. (2009), who suggested two clusters of antecedents: personal (cognitive processing preferences, belief in self-talk, personality traits) and situational (task difficulties, match circumstances, coaching behavior, competitive setting); and four possible underpinning mechanisms that explain self-talk – performance relationship: cognitive (concentration, attention), motivational (self-confidence, motivation), behavioral (technique), and affective (affect, anxiety).

A second model sport specific model for self-talk was proposed by Van Raalte et al. (2016), who adapted Kahneman's (2011) dual-processing theory. This sport-specific model of self-talk highlights the dynamic among: (a) personal factors; (b) contextual factors; (c) cognitive mechanisms; (d) affect, motivation, and anxiety; (e)

behavior; and (f) self-talk. In specific, System 1 refers to processing generates associations and impressions, is automatic, fast, parallel, effortless, difficult to modify, and occurs below the level of awareness via biases and heuristics (Kahneman, 2003; Stanovich & West, 2000), whereas the System 2 refers to the processing of information that occurs in a slow, effortful, and consciously monitored fashion (Kahneman, 2003).

Thirdly, Latinjak et al. (2014) applied a distinction between goal-directed and undirected thought processes. They adapted and modified Christoff's (2012) original framework, to describe the goal-directed and spontaneous self-talk captured from athletes. According to Christoff, Gordon, and Smith (2011), goal-directed self-talk usually occurs during reasoning, problem solving, and decision making and can be described as an expressive of a controlled mental process deliberately employed towards solving a problem or making progress on a task. Further, goal-directed self-talk includes the representation of current and desired states and develops coordinated actions which attempt to convert the former to the latter (Unterrainer & Owen, 2006). As for spontaneous self-talk, it consists of unintended, non-instrumental statements that come to mind unbidden and effortlessly, which are, however, linked to the task or activity at hand and relevant contextual stimuli (Klinger, 2009).

Self-talk Measures in sport

As the domain of self-talk was evolving, the need for valid and reliable measures occurred. A number of methods were used to assess individual's self-talk, including think-aloud processes, interviews, self-monitoring, thought listing and self-reports questionnaires. One of the first measures to be developed was the "Self-Talk

and Gestures Rating Scale (STAGRS, Van Raalte et al., 1994). This instrument assesses observable self-talk based on a rating system including three broad self-talk dimensions: positive (e.g., Good job), negative (e.g., That was a terrible shot), and instruction (e.g., Hit through the ball). Hatzigeorgiadis and Biddle (2000) developed the Thought of Occurrence Questionnaire for Sport (TOQS) assessing three dimensions of cognitive interference: performance worries (e.g., I won't make it today), irrelevant thoughts (e.g., What I am going to do after the training), and thoughts of escape (e.g., I want to get out of here). This instrument provided information for the content, and also the structure and the frequency of athletes' self-talk. Theodorakis, Hatzigeorgiadis, and Chroni (2008) based on empirical evidence and raw data from a large number of athletes developed the Functions of Self-Talk Questionnaire (FSTQ), an instrument that identifies the likely purposes for which athletes may use self-talk. According to the FSTQ dimensions, self-talk can serve to: enhance attentional focus (e.g., Concentrate better to the execution), increase confidence (e.g., Feel more confident for my abilities), regulate effort (e.g., Maintain effort high levels), control cognitive and emotional reactions (e.g., Feel more relaxed), and trigger automatic execution (e.g., Execute as if on an automatic pilot). This questionnaire aimed to identify the purposes for which athletes use self-talk. Zourbanos et al. (2009), developed the Automatic Self-Talk Questionnaire for Sport (ASTQS), an instrument which assessed both positive and negative self-talk and providing support for the multidimensional nature of athletes' self-talk. Specifically, it comprises by eight (four positive, four negative) distinct dimensions: psych-up (e.g., Let's go), confidence (e.g., I can make it), anxiety control (e.g., Calm down), instruction (e.g., Concentrate), worry (e.g., I am going to lose), disengagement (e.g., I

want to stop), somatic fatigue (e.g., I am tired), and irrelevant thoughts (e.g., What I am doing later?).

Mindwandering

Mind-wandering, as a mental activity occupies up to half of our waking thoughts (Killingsworth and Gilbert 2010; Kane, Brown, McVay, Silvia, Myin-Germeys, Kwapil, 2007). In general psychology, mindwandering is a domain which has attracted increasing research attention during the past few years. Although until the beginnings of the 21st century mindwandering was “relegated to the backwaters of mainstream empirical psychology” (Smallwood & Schooler, 2006, p. 956), currently it is considered to be a domain of high importance, with some researchers suggesting that our time “the era of the wandering mind” (Callard, Smallwood, Golchert, & Margulies, 2013). Mindwandering could be any thought that is unrelated to the ongoing task or activity, thus unrelated to the thought eliciting situation (Klinger, 2009). Smallwood and Schooler (2015), supported that it is “a shift in the contents of thought away from an ongoing task and/or from events in the external environment to self-generated thoughts and feelings” (p. 488). These definitions refer mostly to the content of the thoughts and approach it mainly as task-unrelated and stimulus-independent thoughts. In fact, a part of the literature, proposes a more restrictive point of view, proposing that mindwandering can be broadly defined as “stimulus-independent and task-unrelated thoughts” (Stawarczyk, Majerus, Maj, Van der Linden & D'Argembeau, 2011). On the other hand, some researchers advocate that, although

these definitions identify some cases of mindwandering, they do not capture its dynamics of mind wandering, they do not account for task-unrelated thought that does not qualify as mindwandering, and the ways that mind-wandering can be task-related (Irving & Thompson, 2018). A definition, which seems to overcome these deficiencies, is the one that Irving (2016) proposed, describing mindwandering as “unguided attention”. The latter definition tries to put emphasis on the distinction between mindwandering, and two antithetical forms of cognition: rumination and absorption. Rumination is “a mode of responding to distress that involves repetitively and passively focusing on symptoms of distress and on the possible causes and consequences of these symptoms. . . . People who are ruminating remain fixated on the problems and on their feelings about them” (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Absorption is defined as “a disposition for having episodes of ‘total’ attention” that “result in a heightened sense of the reality of the attentional object, impervious to distracting events” (Tellegen and Atkinson, 1974). Tellegen (1981) proposed two conceptually different modes of functioning, characterized by an instrumental set and an experiential set. The instrumental set involves “active, realistic, voluntary and relatively effortful planning, and decision making and goal directed behavior”, whereas the experiential set reflects an involuntary, effortless and deep involvement in task. Individuals prone to absorption are more likely to adopt an experiential rather than an instrumental mode of functioning, particularly in situations with task relevant stimuli that encourages experiential activity (Tellegen, 1981). The instrumental function, due to its nature can be characterized as a goal-directed behavior (Koehn, Stavrou, Cogley, Morris, Mosek, & Watt, 2017). Except for the philosophy and the definitions of mindwandering, a respectful amount of publications, examining other aspects of the domain. Seli, Wammes, Risko, & Smilek (2015) found

that mindwandering can be intentional, (e.g. when athletes bid their minds to wander and become distracted from an unpleasant concurrent experience, such as pain or boredom), or unintentional (e.g. when athletes find their minds have drifted away from the present to a distant place somewhere in the present or future). Exploring the effects of mindwandering, beneficial functions were proven, such as the capability to plan and remember things that need to be done in the future, to generate creative ideas and to display more patience for future rewards (see, Stawarczyk & D'Argembeau, 2016). On the other hand, despite the existence of positive effects, mindwandering has been proven to be mainly detrimental to the task being performed at the moment of its appearance (for a meta-analysis, see Randall, Oswald, & Beier, 2014). Specifically, mind-wandering has been consistently associated with decreased text comprehension while reading, with poorer memory encoding and with more errors and variable response times during attentional tasks (see, Stawarczyk & D'Argembeau, 2016).

Studies of mindwandering in sport psychology

Despite the continuously increasing amount of work in the fields of general psychology and neuroscience, mindwandering is under-investigated in the field of sport psychology. Whereas there were some studies which implicated mind-wandering by using other terms; e.g. dissociative attentional styles (Stanley, Pargman, & Tenenbaum, 2007), irrelevant thoughts (Englert, Bertrams, Furley, & Oudejans, 2015), the first time the term mindwandering appeared in sport psychology research, was when Latinjak et al. (2014), explored athletes' goal-directed and undirected self-talk. Following that, mindwandering was examined in competitive context, where it was frequent in practice and at the beginning of the competition, but it was diminished during competition (Latinjak, 2018). Another study conducted by Latinjak

(2018), examining student-athletes self-reports, revealed that participants gave higher ratings to their problems controlling mindwandering than their abilities to exert control over it. Also the results showed that mind-wandering was more frequent in training than in competition, in class than in exams, in class than in training, and in competition than in exams, whereas participants perceived mindwandering to be more beneficial in class than in exams, in training than in class, and in competition than in exams. Furthermore, mindwandering was more frequent in situations where little cognitive implication was required: waiting for a competition to start, during breaks or sitting on the bench, and while winning comfortably; in physically demanding or warm-up exercises, and during long routines; and while coaches were talking (Latinjak, 2018). Taking into consideration the increasing amount of mind-wandering literature in general psychology, and its importance in the sport context as it emerges from those findings, it is time for a line of research to be developed in sport psychology in order to investigate when mind wandering occurs, under which circumstances and by which means mind wandering aids learning and performance, and how to teach athletes to use mind-wandering in their favor and to avoid mind-wandering when it leads to frustrating distractions (Latinjak, 2018).

Spontaneous Self-talk

In general psychology, spontaneous thought is defined as a mental state, or a sequence of mental states, that arises relatively freely due to an absence of strong constraints on the contents of each state and on the transitions from one mental state to another (Christoff, Irving, Fox, Spreng, & Andrews-Hanna, 2016). In fact, they indicated that spontaneous-thought processes should be examined as a family — a family that also

includes mindwandering, creative thought and dreaming. It is important to consider how mind-wandering can be defined as a special case of spontaneous thought that tends to be more-deliberately constrained than dreaming, but less-deliberately constrained than creative thinking and goal-directed thought (Christoff et al., 2011). In addition, research in psychology and neuroscience reveals that spontaneous thought shares a number of common attributes with goal-directed thoughts (Christoff et al., 2011). For instance, our capacity for spontaneous thought increases during highly practiced tasks (Cunningham, Scerbo, & Freeman, 2000; Smallwood, O'Connor, Sudberry, Haskell, & Ballantyne, 2004) and decreases with age (Giambra, 1989, 1995), just as our capacity for goal-directed thought does (Crawford, Bryan, Luszcz, Obonsawin, & Stewart, 2000; Hasher & Zacks, 1988). Findings from neuroscience have also demonstrated that the brain regions recruited during spontaneous mentation during rest overlap with those recruited during goal-directed thought (Christoff, Ream, & Gabrieli, 2004; Stark & Squire, 2001). Despite spontaneous thought processes are less studied than goal-directed, there is evidence that it can be highly beneficial in a wide range of cognitive domains, from memory and thought, to emotion, motivation, and decision making (see, Christoff et al., 2011). In the field of sport psychology, the term “spontaneous” has been used in two different ways to describe different phenomena. Van Raalte et al. (2014), used the term spontaneous to describe self-talk which has been previously termed “automatic” and recently “organic”. The second use of the term spontaneous, which we adapt in this study, was introduced by Latinjak et al. (2014), as mentioned before. Adjusting the framework used in general psychology and neuroscience into the sport context, they adapted the definition by Klinger (2009) who stated that “spontaneous self-talk includes unintended, nonworking, non-instrumental statements that come to mind unbidden

and effortless but, nevertheless, linked to the task or activity at hand and relevant contextual stimuli”. Latinjak et al. (2014), categorized spontaneous self-talk as for the structure; Spontaneous self-talk varies in terms of valence (from positive to negative) and time perspective (from past related to future related). Specifically, they analyzed the structure of spontaneous self-talk into the following eight categories: (a) *retrospective-negative statements* (e.g. “I played badly”, “I missed a great chance”, “the referee supported the opponents”); (b) *retrospective positive statements* (e.g., “I played well”, “the opponents missed great chances”, “I was lucky”); (c) *anticipatory-negative statements* (e.g. “We will lose”, “I will disappoint my teammates”); (d) *anticipatory-positive statements* (e.g. “ I will win”, “I can change the game”, “I want to play”); (e) *present-related- positive statements* (e.g. “I feel energized”); (f) *present-related-negative statements* (e.g. “I feel bad”); (g) *contextual- positive statements* (e.g., “I am the best”); (h) *contextual-negative statements* (e.g., “I am a loser”).

Secondly, in terms of content: Spontaneous self-talk mostly describes, evaluates, and explains past outcomes and makes predictions concerning upcoming events. Lastly, in terms of wording, Spontaneous self-talk is formulated almost always in first person and rarely in second person (e.g., “I can win”).

Studies on spontaneous self-talk

The examination of spontaneous thoughts- phenomenon in the sport psychology is still in early stages, nonetheless it has produced useful information. Latinjak et al. (2014) evidenced that spontaneous self-talk mostly describes, evaluates, and explains past outcomes and makes predictions concerning upcoming events. Latinjak (2018), examined spontaneous thoughts in competitive context, concluding that they were mostly a mixture of anticipatory or retrospective and positive or negative content. In specific he spotted *anticipatory-negative thinking*, which included negative

predictions, nervousness and wish to disengage; *anticipatory-positive thoughts*, which included desire to win and belief in victory; *retrospective-negative thinking*, related to loss and retrospective positive thinking related to success. In general, spontaneous thoughts was the most numerous one throughout all trials of this study, as long as its percentage of increased throughout the competition. In another study, Latinjak, Hatzigeorgiadis, and Zourbanos (2017), examined spontaneous and goal-directed self-talk in anger and anxiety eliciting situations. The results revealed statistically significant differences as for the frequency of statements in these situations, with spontaneous to be dominant (73,80%). Specifically, in anger-eliciting situations 80,50% of the statements were spontaneous, which were rated by participants, generally as slightly retrospective and negative. As for anxiety-eliciting situations, 67.10% of the statements were classified as spontaneous, whereas most statements were rated as anticipatory in terms of time perspective, and both positive and negative, in terms of valence. Comparing the two situations, spontaneous statements were rated as more positive in the anxiety-eliciting than in anger-eliciting situations.

Goal Directed Self-talk

As mentioned before, in general psychology goal-directed thinking is described as a mental process deliberately employed towards solving a problem or making progress on a task (Christoff et al., 2011). Goal-directed thoughts occur frequently during reasoning, problem solving, and decision-making paradigms. It includes, firstly, the representation of current and desired states, and secondly, the establishment of a link between current and desired states through a series of actions which attempt to convert the former to the latter (Unterrainer & Owen, 2006).

Goal directed self-talk in the sport psychology domain was described by Latinjak, Maso, and Comoutos (2018) as (a) an act of syntactically recognizable communication (Van Raalte et al., 2016), articulated either audibly or subvocally (Theodorakis et al., 2000), addressed to the self, with interpretative elements associated to its content (Hardy, 2006); (b) which is an expressive of a controlled mental process deliberately employed towards solving a problem or making progress on a task (Christoff et al., 2011; Latinjak et al., 2014).

Thoroughly, Latinjak et al. (2014) proved that goal-directed self-talk varies in terms of time orientation (from past oriented to future oriented) and activation (from low to high). In specific, the researchers identified the following seven categories: (a) *Past-oriented statements dealing with cognitive reactions* (e.g., “Not everything can go the way you want to” or “Nothing happened”); (b) *Past/present-oriented statements controlling activated states* (e.g. “don’t be afraid” or “Don’t be emotional”); (c) *Past/present-oriented statements controlling deactivated states* (e.g., “Don't give up” or “Don’t lower the rhythm”); (d) *Present/future-oriented statements creating activated states* (e.g., “Go on!” or “Give a 100%”); (e) *Present/future-oriented statements creating deactivated states* (e.g. “Calm Down” or “Patience”); (f) *Present/future-oriented statements regulating behavior* (e.g. “Concentrate” or “pass the ball”); (g) *Future-oriented statements focusing on positive predictions* (e.g. “Believe in yourself”, “You are good” or “you will succeed”). Secondly, it varies in terms of content; goal-directed self-talk involves changing appraisals and affective states and promoting positive affective states, task instructions, and positive predictions. Thirdly, in terms of wording goal-directed self-talk frequently refers to the self in second person, and less often in first (e.g., “You can win”).

While goal-directed self-talk lies within the organic self-talk entity, Latinjak et al. (2014) identified that strategic self-talk interventions were mostly based on goals-directed self-talk. Nevertheless, Latinjak, Font-Llado, Zourbanos, and Hatzigeorgiadis (2016), identified two main differences between strategic self-talk and goal-directed self-talk interventions. In first place, goal-directed self-talk is completely self-determined, whereas strategic self-talk interventions could be considered, to some degree, attempts of sport psychologists and coaches to influence athletes' cognition. Secondly, strategic self-talk interventions have been planned previous to their application, whereas automatic (or organic) self-talk emerges during sport participation.

Studies of goal-directed self-talk in sport psychology

After introducing the goal-directed classification in sport psychology, Latinjak and colleagues, conducted studies to provide a better explanation of the phenomenon. The first attempt focused on developing a goal-directed intervention (Latinjak et al., 2016). The procedure included the identification of problematic situations involving goal-directed self-talk, as they were perceived by the athlete; challenging the original self-talk and discuss alternative instructions, theoretically examined before putting them into practice; discussion with the athlete about the effects of these alternative instructions and the process of application and automatization. This goal-directed self-talk intervention presents several key differences compared with typical strategic self-talk interventions: Firstly, this intervention analyzed the self-instructions that the participant has been using for years, taking into consideration athlete's autonomous attempts to solve problematic situations, through the use of goal-directed self-talk. Secondly, the intervention took place in the office, allowing the athlete to reflect upon his performance from some distance and helps complementing the intervention.

Thirdly, it is completely self-determined, while the role of the sport psychologist is to guide through interrogative feedback.

In another study Latinjak et al. (2018), examined goal-directed self-talk during technical skill acquisition on 32 novice frisbee players. The results of the study that while before task execution, athletes provided themselves with technical instructions similar to those used in instructional self-talk interventions, between task executions, instructions were frequently transformed into both error descriptions (e.g., you've bent your arm), technical adjustment following errors (e.g., extend your arm further), or into technical transference following success. After task execution, participants reported to have given themselves feedback (via self-talk), both positive and negative, in the forms of positive and negative reinforcement and error description. The results proved important differentiation between goal-directed and instructional interventions, where the cue words did not change as a function of performance.

Latinjak et al. (2017), examined goal-directed and spontaneous self-talk in anger and anxiety eliciting situations. The results revealed that only a minority of organic self-talk statements were goal-directed (26,20%). Specifically, in anger eliciting situations only 19,50% of the statements were goal-directed and as for their functions, they were focusing either on positive predictions (e.g., "I can fix this") or regulating behavior (e.g., "I have to recover the ball"). In anxiety eliciting situations the percentage of statements slightly higher (32,90%) and in terms of function the participants classified most of their goal-directed statements as focusing on positive predictions (e.g., "We can do it"), regulating behavior (e.g., "I have to concentrate") and creating activated states (e.g., "Come on!").

Another exploration of organic self-talk's categorizations was conducted by Latinjak (2018), who investigated goal-directed, spontaneous, stimulus-independent thoughts

and mindwandering in a competitive Context. The results concerning goal-directed thoughts revealed a considerably wide range of purposes. Many goal-directed thoughts aimed at regulating concentration and thought content (e.g. “Start to concentrate”) and action (e.g. “Do I use the best way to separate the cards?”). Other goal-directed thoughts aimed at regulating activation, either promoting effort (e.g. “Come on!”) or tranquility (e.g. “I have to calm down”). Cognitive reappraisal also seemed to be a target of goal-directed thought; sometimes in regard to past events (“Still, it could have been worse”), sometimes in regard to ongoing or upcoming tasks (“You don’t play for your life”). Lastly, statements indicated that goal-directed thoughts might be used to prompt self-efficacy and confidence (“I’ll be as fast as I can be, like lightning”). As for frequencies, results indicate that goal-directed thinking was most frequent during competition, less frequent before competition and least frequent after competition. In general, the results have shown that as competition advances, goal-directed thinking becomes more frequent.

More recently, Latinjak, Torregrossa, Comoutos, Hernando-Gimeno and Ramis (2019), examined 34 male basketball players (Mage = 19.74 years, SD = 2.93; Mexperience = 12.88 years, SD = 3.84), through retrospective recall, in order to understand how they use goal-directed self-talk to cope with psychological demands placed by stereotypical competitive situations. The results revealed that participants use self-talk (in order of decreasing frequency): (a) to precipitate facilitative attitudes for the future, (b) to create or maintain functional activated states (“Keep going”), (c) to regulate cognition and behavior (“Focus”), (d) to create or maintain functional deactivated states (“Patience”) and (e) to control dysfunctional deactivated states (“Don’t give in ”). Self-talk used (f) to reconstruct cognitions (“It’s just yet another

game”) and (g) to control dysfunctional activated states (“There is no pressure”) appeared least frequently.

The Present study

As the organic self-talk conceptualization’s dynamics are being revealed, it could be the case that increasing the knowledge and understanding of the concept might shift the viewpoint of examining self-talk away from the traditional and closer to a revised one. The current study attempts to enlighten the differentiations in frequency and quality of goal-directed, spontaneous and mindwandering thoughts, in relation to the upcoming competition. In addition, we ought to examine the differentiations which might exist between the different parts of the training (part which do not include ball, such as warm up and cooling down and the main part of the training which is performed with the ball).

Research questions:

The specific research questions that this study aims to address are:

- (a) Which are the mean frequencies of each category during the training sessions?
- (b) Do any frequency differentiations come up as the competition approaches?
- (c) Do different parts of the training session affect athletes’ organic self-talk?
- (d) Which is the content and functions of athlete’s organic self-talk during the training sessions?

Method

Participants

The participants were 11 Greek Football players ($M_{age} = 18.55$ years, $SD = .69$), members of PAS LAMIA U19 squad, currently participating in the Superleague U19 (Greece's first division). All athletes were informed that participation was voluntary and that their answers would remain anonymous and confidential. An informed consent was provided by every athlete.

Procedures

The study received ethical approval from the University of Thessaly ethics committee. Participation involved 2 group presentations and 2 individual discussions with each player about each category, in order to secure the complete understanding of the concept. After we were confident that each participant had fully understood the concept, we proceeded to the data collection. In each training session, every participant was asked 6 times to categorize his current thought or self-talk. The procedure was repeated for 5 consecutive training sessions, which took place before the upcoming competition. The researcher was involved in the team setting for 8 months prior to the study, attending every training session, to build trusted relationships with the athletes. This approach was chosen to minimize the risk of getting socially desirable responses. In addition, the coaching staff was advised not to involve at any stage of the procedure – an instruction which was fully respected- so that the athletes would feel free to give honest answers.

Method

For collecting the data, we used the *probe-caught method*. This method involves

stopping participants during a task and asking them where their attention is directed. Although there are various ways to use this method, we chose to provide the participants with *categorical response options*, to acquire quantitative data. In particular, participants were asked to categorize their thoughts into the following 4 categories:

1st = “Non- Verbal Thinking”

2nd = “Mindwandering”

3rd = “Spontaneous thought”

4th = “Goal- Directed thought”

During the training session, the athletes were asked from the researcher asked by the researcher to categorize the thought. The asked the athlete by calling his name or giving as small hit at his back and the athlete provided the response by naming the number of the category in which he currently categorized his thought, or by showing the number of the category by using his fingers. As for quantitative data, the athletes were asked to write down their actual thoughts/ self-talk, for every category they had stated in the previous stage. The use of self-reports provided access to cognitive activation and metacognitive knowledge that cannot be obtained through other methods (Guerrero, 2005). Writing down self-statements has proven effective in isolating self-verbalizations from other cognitive products such as preverbal thoughts or images. (Latinjak, Masó, Calmeiro, and Hatzigeorgiadis, 2019)

It is a fact that we could have used the open-ended probe -caught method, which involves having participants report exactly what they are thinking, verbatim, at each probe (Klinger, 1984), could provide qualitative data as well. The reason why we

abandoned this approach and preferred a retrospective recall of the statements is that it could have been disastrous for the continuity of the training session.

Results

The results were based on the answers of 10 athletes for Day_1, 10 athletes for Day_2, 11 athletes for Day_3, 10 athletes for Day_4 and 11 athletes for Day_5. The absence of some players was a result of minor injuries and personal reasons, which were irrelevant with the study. A total of 312 statements were categorized by the participants

Quantitative data analysis

Since some values were missing, we chose to present the week results based on the percentages of the answers, instead of the frequencies, for each day.

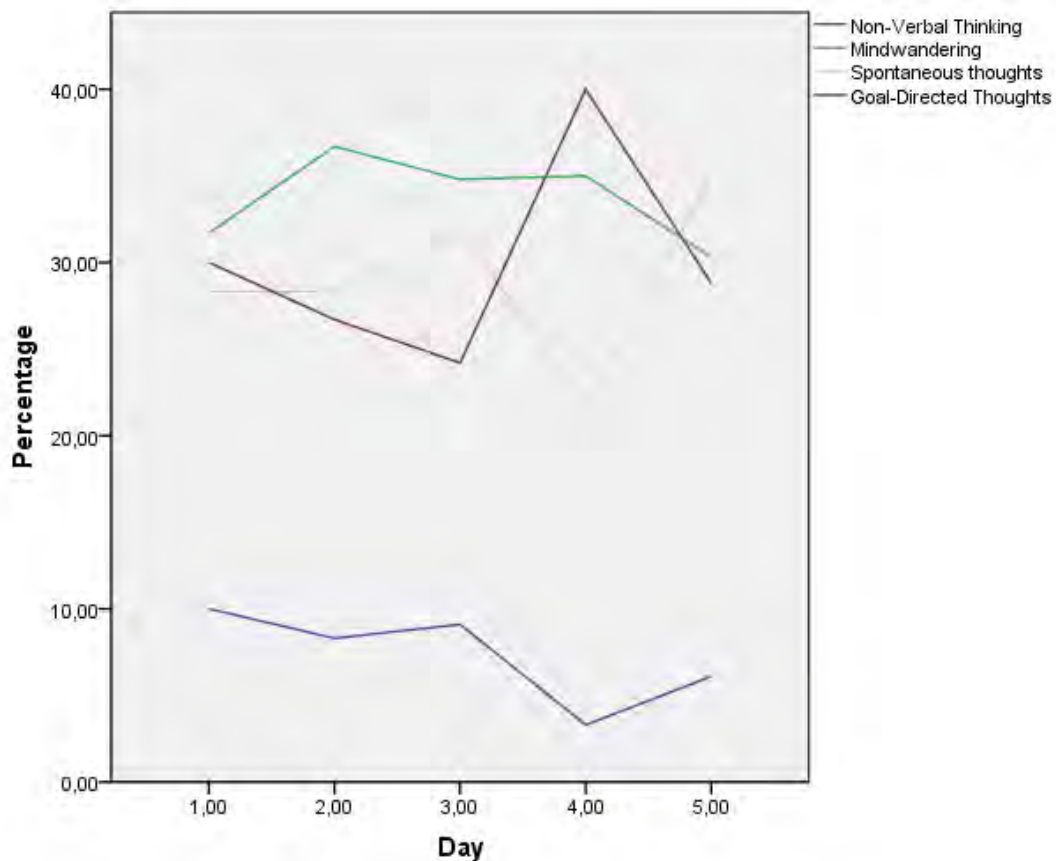


Figure 1. Percentages of each category during the week

Overall Percentages

The results revealed a relative stability for each category, during the week. In specific *non-verbal thinking* had the lowest percentages among the categories ($m=7.36\%$, $SD=2.69\%$). The lowest percentage for this category was written down at Day_4 (3.3%) and the highest was 10% at Day_1. The mean percentage of the week for *mindwandering* was 33.7% ($SD=2.62\%$). The lowest percentage was 30.3% (Day_5), whereas the maximum percentage 36.7% (Day_2). As for *spontaneous thoughts*, the mean percentage was 28.98%, ($SD=4.89$). Its lowest percentage was reported on Day_4 (21.7%), while the highest (34.8%) was reported on Day_5.

Finally, the mean percentage for *goal-directed thoughts* was 29.94% (SD= 6.04). The lowest percentage was reported on Day_3 (24.2%) and the highest on Day_4 (40%).

Differentiations during the week

One-way repeated measures ANOVA was conducted to examine the differences in the thought categories across time for the athletes, as the competition day approached. The results revealed non-significant effect of time, $F(3.556, 167.12) = 1.48, p > .05$. Pairwise comparisons also showed non-significant differences for each category between any of the days.

Correlations between the categories

Examining the correlations between the categories, we found that Non- Verbal thinking was not correlated to spontaneous thinking ($r = -.09, p = .52$), whereas there was a weak negative correlation between non-verbal thinking and mindwandering ($r = -.29, p = .03$) and also between non-verbal thinking and goal-directed thoughts ($r = -.39, p < .01$). A significant, negative, moderate correlation was identified between mindwandering and spontaneous ($r = -.58, p < .01$), whereas there was no correlation between mindwandering and goal-directed thinking ($r = -.42, p > .05$). Finally, a significant, moderate, negative correlation was detected between spontaneous and goal-directed thinking ($r = -.56, < .01$).

Differentiations between different parts of the training.

The main differentiation we ought to examine is the one between the parts of the training that are executed without the ball (warm up, cooling down) and the parts which are executed with the ball. Therefore, the study was designed in a way that both these parts will be examined. Measure_1 and Measure_2 were taken at the warm-up part, whereas Measure_6 was taken at the cooling down part, all of which did not include any implementation of the ball. On the other hand, Measure_3, Measure_4 and Measure_5 were taken at the main part of the training session, which were executed with the ball. The results revealed that without ball implementation (Measures 1,2 & 6), “Non-Verbal thinking” included 10.26% ($n=16$) of the answers, whereas “Mindwandering” category was dominating, reaching a percentage of 51.28% ($n = 80$). “Spontaneous thoughts” category included the 25% ($n = 39$) of the statements and finally 13.46% ($n = 21$) of the statements were described as “Goal-Directed thoughts”.

On the other hand, at the main parts of the training in which ball was implemented (Measures 3,4 & 5), only 4.49% ($n =7$) of the statements were categorized as “Non-Verbal Thinking”, while 14.74% ($n =23$) of them were listed as “mindwandering”. “Spontaneous thoughts” category consisted 35.26% ($n = 55$) of the statements and lastly, “Goal-directed thoughts” category included 45.51% ($n = 71$) of the statements. (Figure 2)

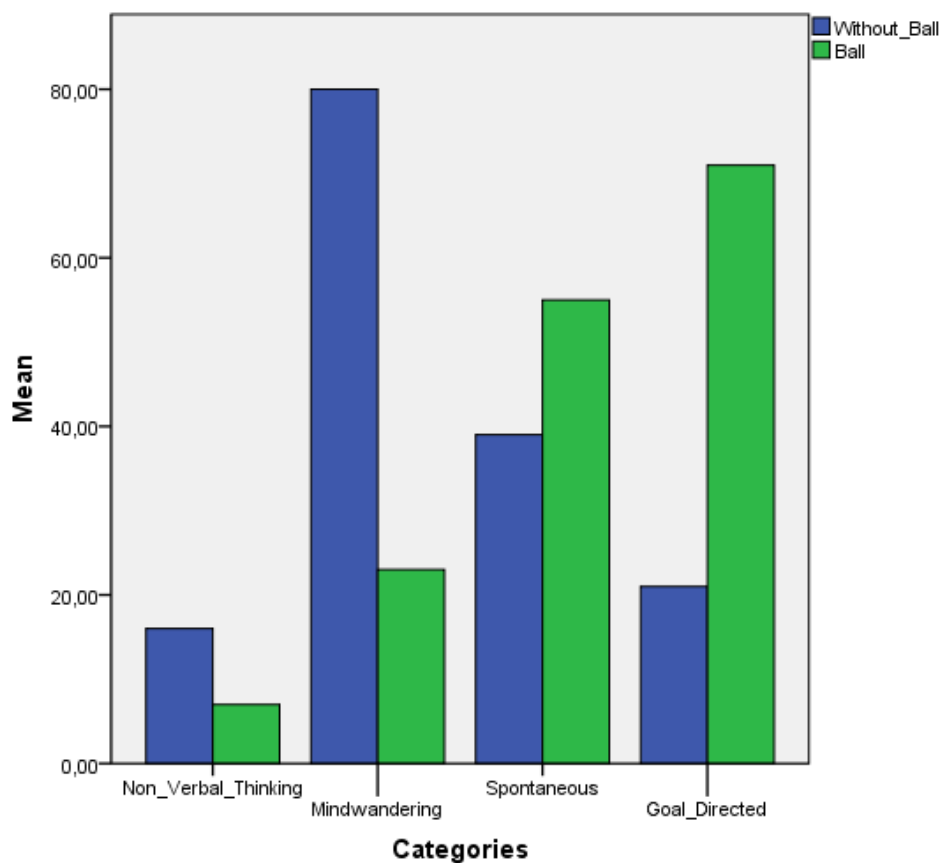


Figure 2. Frequencies without and with ball implementation

We used paired samples t-test in order to examine if there were significant differences between each category as a function of ball implementation. The results showed non-significant difference between “Non-verbal thinking” without and with implementing the ball, $t(51) = 1.925, p = .06$. As for “mindwandering” the analysis revealed significant differences for the frequency of statements between the parts of the training which were executed without and with the ball, $t(51) = 6.45, p < .01$. Participants reported more mindwandering in the parts without the ball ($n = 80$), compared to the parts with the ball ($n = 23$). The results for “Spontaneous thoughts” category, showed that there were non-significant differences for this category with

and without the ball, $t(51) = -1.76, p = .08$. On the contrary, the results for “Goal-directed thoughts” category revealed significant differences between the parts that did not implement the ball and those who did, $t(51) = -6.57, p < .01$. In specific goal-directed thoughts increased at the parts of the training in which the players used the ball ($n = 71$), compared to the parts in which they did not ($n = 21$). (Table 1)

Table 1
Results of pairwise comparisons with and without ball implementation

Categories	Without ball implementation		With ball implementation		$t(51)$	p
	M	SD	M	SD		
Non- verbal thinking	.31	.64	.13	.34	1.925	.06
Mindwandering	1.54	.96	.42	.54	6.450	.00
Spontaneous	.77	.88	1.08	.86	-1.760	.08
Goal-directed	.38	.57	1.37	.89	-6.577	.00

Table 1. Pairwise comparisons with and without ball implementation

Furthermore, one-way repeated measures ANOVA was conducted to detect the specific differences between the 6 measures, as a function of ball implementation. The results revealed a strong interaction effect $F(4.64, 236.5) = 15.27, p < .01$. Pairwise comparison showed significant differences between Measure 1 and Measures 3, 4 & 5 (all the three measures which were conducted when ball was implemented). In addition, significant differences were detected between Measure 2 and Measures 3, 4 & 5. Accordingly, significant differences were found between Measure 6 and Measures 3, 4 & 5. Finally, no differences were found between Measures 1, 2 & 6 (conducted when ball wasn't implemented), as long as between Measures 3, 4 & 5 (conducted when ball was implemented). (Table 2)

Table 2
Descriptive statistics and pairwise comparisons between the measures

Measures	N	M	SD	1	2	3	4	5	6
1. Measure_1	52	2.23	.70	-					
2. Measure_2	52	2.52	1.00	.764	-				
3. Measure_3	52	3.15	.87	.000	.002	-			
4. Measure_4	52	3.33	.88	.000	.001	.995	-		
5. Measure_5	52	3.17	.83	.000	.014	1.000	.999	-	
6. Measure_6	52	2.50	.80	.609	1.000	.003	.000	.003	-

Table 2: Pairwise comparisons between the measures

Qualitative Data analysis

Out of 312 answers given, 289 were analyzed in quantitative terms. The answers which were categorized by the athletes as “Non- verbal thinking” (n=23) were – due to their nature- not included to the qualitative data analysis. Out of the 289 statements, 103 were categorized as “mindwandering”, 94 as “Spontaneous” and 92 as “Goal-directed”

Mindwandering

The first analysis conducted for mindwandering aimed to address the time orientation of the statements. Out of a total 103 statements, 14 were past-oriented, 35 were present-related and 54 statements were future oriented.

Regarding past-related statements, some of them (n=4) concerned memories from events that happened during the holidays (e.g. “I had a great time during the days-off”; “I’ve been thinking things that I did during the Easter holidays”), (occurred

only in Day_1), whereas the rest of them were related to other situations (e.g. “trying to remember a song I heard; “thinking about a movie I saw last night”). As for emotional classification, negative emotions seemed to be connected to 5 of past-oriented statements (e.g. “I was considering the problems with my girlfriend”; “thinking about my bad grades in my private lesson’s exams” or “the past few days were very tiring”), while the rest statements couldn’t be classified in terms of emotion.

As for present-related statements (n=35), the majority (18 statements) was consisted of internally singing a song, during the training session. In addition, 8 statements included discussion with a teammate (e.g. “Talking with George about his job”; “talking about a friend of ours, who travelled in Germany”). Despite most of the statements couldn’t be classified in emotional terms, some of them revealed negative emotions (e.g. I was completely lost, thinking about my problems”), including boredom (e.g. I was totally bored, waiting for the exercise to finish). On the other hand, positive emotions were detected too (e.g. “making fun with my teammates about irrelevant stuff” or “making jokes with my teammates”).

Thirdly, regarding future-oriented statements, the analysis revealed that 44 out of the 54 statements referred to the very near-future, involving thoughts about next few hours (up to 24 hours after the session) (e.g. “Considering what I am going to eat after the training”; “Considering going to the cafeteria after the end of the session” or “thinking about a meeting after the training session”), whereas only 9 statements referred to the distant future (e.g. “Considering if I’ ll be able to go to the university next year”; “Making plans about the summer holidays” or “How I will spend Sunday, if I don’t participate in the game”). In general, most of future oriented statements (n=42) contained plans or organizational thoughts. Thoughts about their after training

activities and their upcoming meals were dominating, (e.g. “should I hang out afterwards?”, “considering what am I going to eat after the training?” or “Making plans for the evening”), while there was also a minority of long-term planning thoughts (e.g. “How should I approach the girl I like”; “ I should study for the Panhellenic exams” or “Considering if I’ ll go to the university next year”). Emotional classification was not wasn’t possible for future-oriented mindwandering statements.

Spontaneous Thoughts

The primary analysis of spontaneous statements’ content was based on the framework proposed by Latinjak et al. (2014). First, in terms of valence, the results revealed that 70 statements had negative valence and 23 had positive valence. Secondly, in terms of time perspective, 14 statements were retrospective, 49 were present related/ contextual and 30 were anticipatory. One (1) statement could neither be classified in terms of valence, nor in terms of time perspective (“Nevermind, its ok”). Thoroughly, regarding *retrospective-negative statements* (n=12), 9 of them contained internal attributions of failure (e.g. “I made a wrong pass” or “I sucked today”), 2 of them resembled external-uncontrolled attributions of failure (“this was an awful pass (for a teammate)” or “nothing went the right way”), while there was also one statement referring to the coach’s unpleasant behavior (“He (the coach) is welling at me from the beginning of the session”). As for *retrospective- positive statements* (n=2), both statements resembled internal- controlled attributions of success (“I haven’t made many mistakes today” and “I’ve improved my stamina”). Regarding *anticipatory-negative statements* (n= 14), most of them were resembling negative predictions (n=11) (e.g. “I won’t be able to keep up for 90 minutes tomorrow” or “I won’t make

it”), while there were also 3 statements declaring annoyance (“The game is scheduled very early” and “He (the coach) scheduled the training very early tomorrow”).

Moreover, it is important to mention that almost half of the statements ($n=6$) were stated at Day_5 and included negative predictions about their participation in the game. In regard to *anticipatory- positive* statements ($n = 16$), they included positive predictions ($n = 3$) (e.g. “I will keep up my form for the next game” or “I will score), as long as motivation- related statements ($n =13$) (e.g. “I have to make good passes” or “I can’t wait till the next game”). Regarding *present-related and contextual* statements ($n = 49$), they were classified into *present-related positive statements* ($n = 5$) (e.g. “I want to draw the ball between their feet” or “Show some desire”), *present-related negative statements* ($n = 24$) (e.g. “I don’t execute the exercise right”; “I’m not performing well today” or “I’m exhausted”), *contextual- negative statements* ($n = 20$) (e.g. “why is he (the coach) treating me like that?”; “Come on! What are you doing?” (judging a teammate’s mistake), or “Doesn’t matter, I can’t do better”).

Categorization of spontaneous thoughts

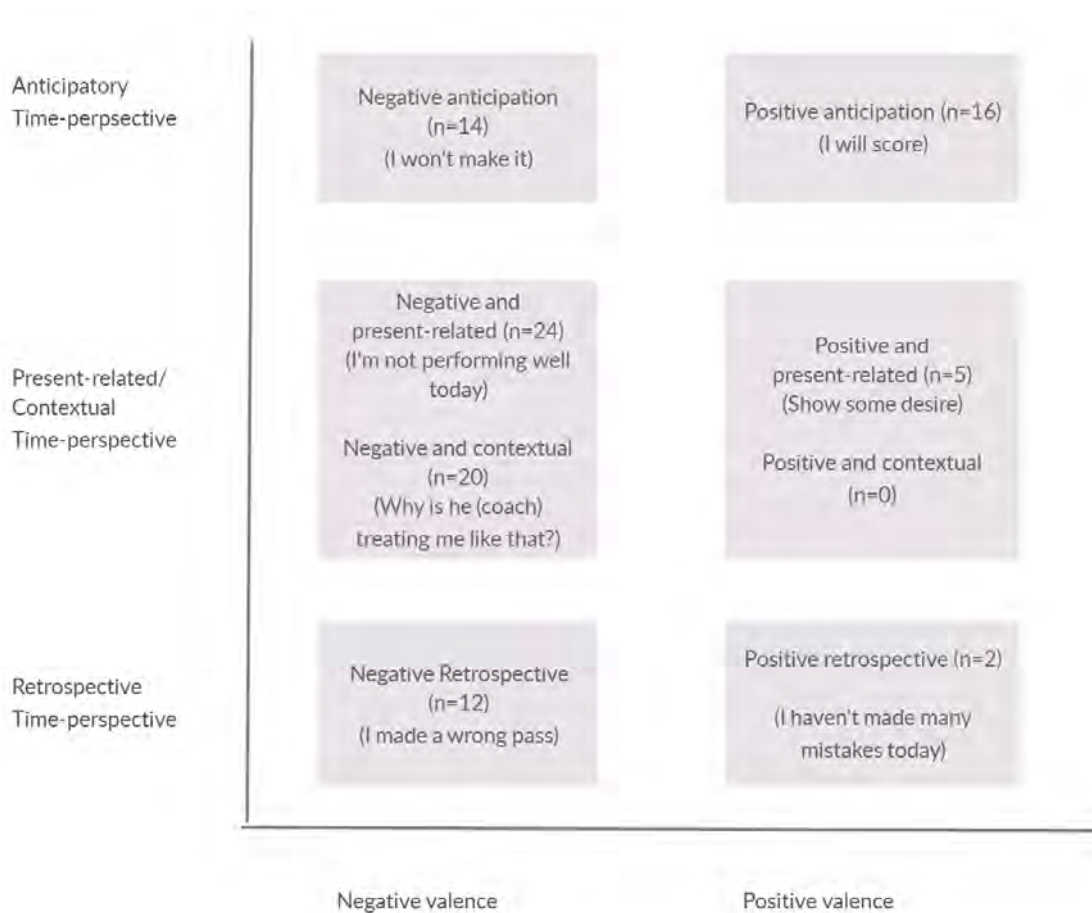


Figure 3. Qualitative categorization of spontaneous thoughts

Goal Directed thoughts

The analysis of Goal-directed statements' content was also based on Latinjak et al.'s, (2014) framework. A total of 92 statements were classified in terms of *time-orientation and activation*. Following the framework's paradigm, regarding time-orientation the statements were placed on a time-continuum that varied from clearly

past-oriented to clearly future-oriented with two in-between intervals (past-present oriented and present-future oriented). As for activation, statements were divided into three major categories, which also included the following sub-categories: (a) deactivation-oriented (including *controlling deactivated states* and *creating deactivated states*), (b) activation-oriented (including *controlling activated states* and *creating activated states*) and (c) *neutral in terms of activation* (including *controlling cognitive reactions*, *behavioral regulation* and *focusing on positive predictions*). According to the structure of this framework, athletes' answers were grouped into seven different types of statements, following the original categorization offered by Latinjak et al. (2014):

Past-oriented statements dealing with cognitive reactions (n=1).

Only one statement was classified in this category ("That was very good"), which signifies relief.

Past/present-oriented statements controlling activated states (n=0)

No statement was classified into this category.

Past/present-oriented statements controlling deactivated states (n=2).

Two statements were grouped into this category ("Stay concentrated on the training" and "Let's go, stay concentrated"). Both of them focus on controlling deactivation by restoring concentration, which at the time was lost. The reason why these statements were classified into this category is that in both situations, athletes perceived that they were already concentrated until that time, or until sometime before.

Present/future-oriented statements creating activated states (n=12)

Twelve of the statements were classified into this category (e.g. “Come on, let’s do it better”; “I must manage to complete the exercise” or “Let’s go stronger”). The content of this category has many similarities with motivational self-talk (e.g., Theodorakis et al., 2000; Latinjak et al., 2014) and its effects have been in depth explored within the sport psychology literature (e.g., Hatzigeorgiadis et al., 2014; Kolovelonis, Goudas, & Dermitzaki, 2011).

Present/future-oriented statements creating deactivated states (n=3)

Only three statements were classified into this category (“Relax, I’m just fine”, “I executed the exercises well, now I’m tired and I have to do proper cooling-down” and “Save some strength”). According to the analysis, first statement aims to control the athlete’s anxiety levels, while the second and the third one aims to control the athlete’s arousal.

Present/future-oriented statements regulating behavior and cognition (n=39).

The current category was dominating, as the most statements were classified in it. Alike Latinjak et al.’s (2014) qualitative analysis, we found task-specific statements ($n = 23$), which have been called instructional self-talk in the sport psychology literature (e.g., “see the whole pitch” or “Win the ball and pass across the opponents”), as long as statements aiming at general cognitive control ($n=16$) (e.g., ; “concentrate”). It is important to underline that all general cognitive control statements implemented the notion of concentration (e.g., “Be concentrated” or “I’m fully concentrated”). No emotions were related to the statements in this category.

Future-oriented statements (n = 35)

Thirty-five statements were grouped into this category (e.g., “I can make the passes correctly”; “I can do better” or “I’ll score every shot”). The analysis revealed

statements aiming at up-regulating self-confidence (e.g., “I can keep the ball”), self-esteem (e.g., “I can”), promoting mastery goals (e.g. Let’s go better), promoting performance-approach goals (e.g. “I must manage to complete the exercise”), and promoting performance-avoidance goals (e.g. “Do as less mistakes as you can during the build-up”).

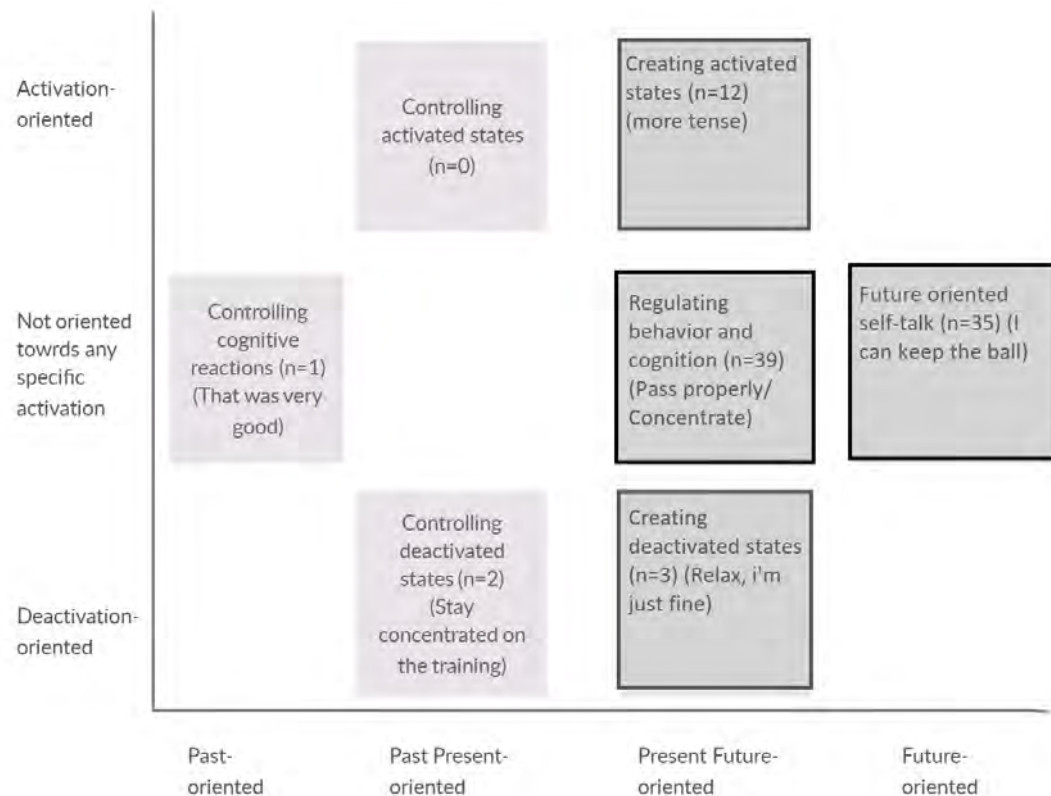


Figure 4. Qualitative categorization of Goal-Directed thoughts

Discussion

The purpose of this study was to explore the differentiation of footballers’ organic self-talk, as well as between the different parts of the training (with and without the ball), during their preparation period for the upcoming competition. To provide a deeper understanding, both quantitative and qualitative analysis of the statements was

conducted. The primary analysis revealed that the frequencies mindwandering, spontaneous and goal-directed self-talk were relatively close during the whole week, whereas non-verbal thinking category was by far the lowest in frequency.

Quantitative analysis was based on two different axes; firstly, we examined the differentiations which occurred, as an effect of the approaching competition and secondly the differentiations which occurred within the different stages of the training sessions. For the analysis of the first axis, we compared athletes' answers for each of the five days of training (Day_1, Day_2, Day_3, Day_4, Day_5). The results revealed no significant differences for any of the four thought/ self-talk categories between any of the five days. As a matter of fact, the approach of competition doesn't seem to be a factor that has major impact on athlete's organic self-talk, in this particular sport context. While, to the author's knowledge there are not any similar studies to compare our results with, we will try to draw a parallel with Latinjak's (2018) paper, who examined the differentiation of mindwandering, spontaneous self-talk and goal-directed self-talk during the progress of competition. In this study, the measures between the competition trials revealed a relative stability for goal-directed and a slight increase for spontaneous self-talk, while on the other hand was almost diminished. These results are not in line with our study, in which mindwandering is relatively stable, through the five training sessions. Despite the different nature of the studies, we can suppose that the differences rely on the fact that every training session is a complete procedure and not just a stage which leads to the competition.

Regarding the second axis, the analysis was focused on two fundamentally different stages of the training sessions; those who do not implement the ball (Measure_1, Measure_2, Measure_6) and those who do (Measure_3, Measure_4, Measure_5). The results revealed that all measures from each stage had statistically significant

differences with all the measures from the other. Based on that fact, we can assume that ball implementation is factor that influences organic self-talk. These results are in line with previous research which indicates that as tasks get easier and external demands on attention become lower, the frequency of task-unrelated thoughts tends to increase (Antrobus, 1968; Filler & Giambra, 1973; Teasdale, Proctor, Lloyd, & Baddeley, 1993). Extensively, significant differences were detected for mindwandering and goal-directed self-talk categories, between the two stages. Specifically, in the stage that the ball is not implemented in the training (warm up, cooling down) *mindwandering* is dominating, while goal-directed self-talk's frequency was extremely low, almost equal to non-verbal thinking category's frequency. On the contrary, when the ball was implemented, *goal-directed* self-talk category was the most frequent, including nearly half of the statements in this stage. On the other hand, the frequency of mindwandering was extremely decreased. As for spontaneous self-talk, its frequency increased during the parts that ball was implemented but the difference was not statistically significant. Through this analysis we can clearly conclude that in this context, mindwandering and goal-directed self-talk are affected by the type of the training. The results are in line with previous studies. Specifically, we already know that during competition, successful and unsuccessful executions (Latinjak et al., 2018; Zourbanos, Tzioumakis, Araujo, Kalogirou, Hatzigeorgiadis, Papaioannou & Theodorakis, 2015) and the levels of uncertainty regarding goal-attainment (Latinjak, 2018) can also play significant roles in athletes' goal-directed self-talk. The nature of training without ball implementation (warm up, cooling down) does not contain the latter elements, thus it doesn't trigger goal-directed self-talk. Moreover, task difficulty was positively related to goal-directed thinking, (Duncan & Cheyne, 2002; Fernyhough & Fradley, 2005). Finally,

Latinjak (2018), proved that goal-directed thinking is more frequent during competition than before.

As for mindwandering, its significant reduction when the ball is implemented is also supported by previous findings in which mindwandering was more frequent when there were zero or a few chances of losing; whereas with high chances of losing, its frequency was diminished (Latinjak, 2018). This conclusion is compatible with our study, where warm up and cooling down routines did not contain the chance of losing, in contrast with the ball-implementing routines. Similarly, mindwandering was found to be more frequent in easy, compared to difficult, tasks (Smallwood, Obonsawin, & Reid, 2003). As for spontaneous, the fact that these thoughts are effortless and do not tend to interfere with other cognitive processes (Lieberman, 2007), but they could reflect a series of psychological states and processes relevant for performance as well (Latinjak, 2018), is a factor that can explain the absence of statistically significant differences between the two parts of the training.

The qualitative analysis for mindwandering showed that more than half of the statements were future-oriented, one-third of them was present-related, while there were also a few past-related statements. None of the statements was related to the task at the hand. Other studies examining mindwandering also found that it contains past and future oriented statements and it is unrelated to the task at the hand (Latinjak, 2018).

Regarding spontaneous self-talk, the results revealed that its content was mostly negative in terms of valence and present related/ contextual in terms of time perspective. In Latinjak et al.'s (2014) analysis of spontaneous statements, in terms of valence negative and positive statements were almost equal. In addition, in terms of time perspective anticipatory and retrospective statements were outnumbering present

related/ contextual statements. One possible explanation for this might be the coach's leadership style, as many of the answers refer to him or derive from his feedback. Research has shown that coaches and relevant others can affect athletes' self-talk (Theodorakis et al., 2012).

On the other hand, the thriving majority of goal-directed statements, was categorized into 3 categories; *Present/future-oriented statements regulating behavior and cognition* (n=39), *Present/future-oriented statements creating activated states* (n=12) and *Future-oriented statements* (n=35). Similarly, these were the most popular goal-directed categories in Latinjak et al.'s (2014) study. Additionally, in a study by Latinjak et al. (2019), examining goal-directed self-talk in competitive setting, these three categories were found again to be the most popular.

Limitations

Given the nature of the present study, there is a number of limitations that further research should address. Firstly, as a case study approach that has been used, the sample is not representative therefore the results cannot be generalized for other genders, age groups, sports and contexts. Secondly, the lack of assessing other factors that might influence athletes' organic self-talk might have affected the conclusions about the suggested hypotheses. Further investigation would provide us with a deeper understanding on the relationships between the constructs. Moreover, since the experimenter in the study is also the author of the paper, he might have biased athletes' responses during the task.

Practical Implementations

The results of this study could provide useful information for applied practitioners to develop more effective, self-determined goal-directed self-talk interventions (Latinjak et al., 2016) in soccer, as it enhances a better understanding of athletes' organic self-talk in real-time training performance. The fact that this procedure implies a learning process for the sport psychologist as well, pinpoints the utility of this study. Secondly, our conclusions could be utilized from coaches and soccer professionals, to design more effective training sessions.

Future Recommendations

The conceptualization introduced by Latinjak et al. (2014), brought up a new scope in self-talk research. Goal-directed self-talk could be an essential mechanism of behavioral change, while the existing categories of its functions may be insensitive to relevant nuances in self-talk functions in specific situations, such as acquiring a new skill, feeling tired or waiting for a game to start (Latinjak et al., 2019). Spontaneous self-talk can be viewed as a window into the athlete's mind, as it informs on athletes' performance beliefs, goal-orientations, irrational beliefs, thoughts of disengagement, and attributions of success and failure. The present study attempted to examine how organic self-talk in training might differentiate in relation to the approach of the competition and the different parts of training. Future research should try to examine the effects of other factors on organic self-talk. For instance, motivational climate or coaching behavior could be among other situational factors that should be examined in the future.

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Appendix



ΠΑΝΕΠΙΣΤΗΜΙΟ
ΘΕΣΣΑΛΙΑΣ

Φύλλο Μετρήσεων

Όνοματεπώνυμο αθλητή:

Ημερομηνία:

		Αυτούσια σκέψη/ αυτοομιλία
1 ^η Μέτρηση		
2 ^η Μέτρηση		
3 ^η Μέτρηση		
4 ^η Μέτρηση		
5 ^η Μέτρηση		
6 ^η Μέτρηση		