Mechanisms underlying the self-talk–performance relationship: The effects of motivational self-talk on self-confidence and anxiety

Antonis Hatzigeorgiadis*, Nikos Zourbanos, Sofia Mpoumpaki, Yannis Theodorakis

Department of Physical Education and Sport Sciences, University of Thessaly, Trikala 42100, Greece

ARTICLE INFO

ABSTRACT

Objectives: The present study examined the effects of motivational self-talk on self-confidence, anxiety, and task performance in young athletes.
Methods: Participants were 72 tennis players. The experiment was conducted in five sessions: baseline assessment, three training sessions, and final assessment. After the baseline assessment participants were divided and assigned randomly into experimental and control groups. The two groups followed the same training program with the experimental group practicing the use of self-talk. In the last session, the final assessment took place. A forehand drive test was used to evaluate task performance, and the Competitive Anxiety Inventory-2R was used to assess self-confidence and anxiety.
Results: A two-way mixed model MANOVA revealed that task performance improved for the experimental group ($p < .01$) and remained stable for the control group; self-confidence increased ($p < .01$) and cognitive anxiety decreased ($p < .05$) for the experimental group, whereas no changes were observed for the control group. Correlation analysis revealed that changes in task performance were moderately related to changes in self-confidence ($p < .05$).
Conclusions: The results of the study showed that self-talk can enhance self-confidence and reduce cognitive anxiety. Furthermore, it is suggested that increases in self-confidence can be regarded as a viable function explaining the facilitating effects of self-talk on performance.

Introduction

Self-talk has been central in cognitive behavioural modification (Meichenbaum, 1977). Based on the principle that what people say to themselves affects the way they behave (Ellis, 1976), strategies involving mental processes have been developed to regulate cognitions and develop or change existing thought patterns. The use of self-talk plans to control and organize athletes' thoughts has been promoted as a key component for successful sport performance, and self-talk is frequently included as an integral part of psychological skill training (Hardy, Jones, & Gould, 1996). Accordingly, sport research regarding the use and effectiveness of self-talk has received considerable attention in recent years. Research adopting various designs (e.g. experimental, intervention and single-subject designs) in a variety of sports and tasks has supported the effectiveness of the self-talk strategy in facilitating learning and improving task performance (Zinnser, Bunker, & Williams, 2006).

Research has progressively moved towards the identification of the functions underlying the effectiveness of self-talk, that is the mechanisms through which self-talk affects performance (Hardy, 2006). Johnson, Hrycaiko, Johnson, and Hallas (2004) suggested that the core of self-talk is that focusing on the desired thought leads to the desired behaviour. In other words, ST is an instruction to initiate or perform an action or a sequence of actions. Several explanations have been provided regarding the facilitating effects of self-talk on performance. Landin (1994) and Nideffer (1993) supported an attentional interpretation of the self-talk effects. Landin proposed that self-talk can be used to enhance attentional focus, whereas Nideffer indicated that self-talk can be an effective strategy for directing or redirecting attention to task relevant cues. Finn (1985) and Zinnser et al. (2006) suggested that self-talk can serve to regulate effort and enhance self-confidence, whereas Hardy et al. (1996) argued that self-talk can also be effective in controlling anxiety and triggering appropriate action.

Hardy, Gammage, and Hall (2001) in a qualitative descriptive inquiry, based on Paivio's (1985) conceptualisation regarding the functions of imagery, identified two broad functions of self-talk, cognitive and motivational. They suggested that these two general functions can be further broken down into more specific lower order functions. Accordingly, the motivational function comprises

* Corresponding author. Tel.: +30 24310 47009.
E-mail address: ahatzi@pe.uth.gr (A. Hatzigeorgiadis).

a motivational arousal function (referring to psyching-up, relaxation, and arousal control), a motivational mastery function (referring to mental toughness, confidence and mental preparation), and a motivational drive function (referring to regulating drive and effort). Similarly, the cognitive function comprises a cognitive specific function (referring to skill learning and development) and a cognitive general function (referring to strategy and performance enhancement). Considering Hardy et al.'s approach, Zervas, Stavrou, and Psychountaki (2007) developed an instrument assessing the two broad cognitive and motivational functions. The authors created a pool of items assessing the two dimensions (cognitive, e.g. I talk to myself to give directions; motivational, e.g. I talk to myself to increase motivation), and supported the factorial validity and the reliability of the instrument. On concluding, they identified that further developments should consider the role of self-talk in regulating specific psychological aspects of performance, such as self-confidence, mood, anxiety control and effort, as possible functions of self-talk. Finally, Theodorakis, Hatzigeorgiadis, and Chroni (2008) based on empirical evidence and raw data generated through athletes' reports further examined the functions of self-talk. Content analysis and a series of exploratory and confirmatory factor analyses identified five distinct functions of self-talk. In particular, they suggested that self-talk can serve to enhance attentional focus, increase self-confidence, regulate effort, control cognitive and emotional reactions, and trigger automatic execution, and provided evidence regarding the psychometric properties of the questionnaire.

Preliminary evidence regarding the speculated effects of self-talk has been provided through studies examining the effectiveness of self-talk in a variety of tasks and settings, and through athletes' post-experimental reports. Van Raalte, Brewer, Rivera, and Petipas (1994) asked young tennis players after the conclusion of competitive matches to report their self-talk and how they thought their self-talk affected their performance. Participants reported that positive self-talk helped them concentrate and enhanced their motivation. Landin and Hebert (1999) implemented a self-talk strategy aiming at improving volleying skills in collegiate tennis players. Participants reported that self-talk helped them feel more confident and direct their attention more efficiently. Perkos, Theodorakis, and Chroni (2002) administered a 12-week self-talk training program in young basketball players and found that the use of self-talk improved players' dribbling and passing performance. In a post-experimental short questionnaire participants indicated that the use of self-talk improved their concentration and self-confidence. Thelwell and Greenlees (2003) implemented a psychological skills training program to four recreational athletes competing at a laboratory-based triathlon task. The results revealed that participants' performance at the task improved across trials. Participants perceived that self-talk increased their motivation and self-confidence and enhanced their attentional focus. Finally, Johnson et al. (2004) using a single-subject multiple baseline design, tested the effectiveness of a self-talk intervention program in female football players, assessing performance in the low drive shot over a period of three months. Their results showed that shooting performance improved for two of the three participants, whereas all three participants reported increased self-confidence compared to baseline.

An experiment investigating the attentional function of self-talk was conducted by Hatzigeorgiadis, Theodorakis, and Zourbanos (2004). They assessed performance and occurrence of interfering thoughts during performance in two experimental water-polo tasks. Their results revealed that task performance improved and interfering thoughts were reduced for participants using self-talk, whereas no differences were recorded for a control group. The authors also reported that increases in task performance were related to decreases in interfering thoughts, and suggested that performance enhancement could be attributed to the reduction of interfering thoughts, even though clear inferences regarding the causality could not be claimed.

Another line of research providing indirect evidence that self-talk may serve several functions involves the investigation of the effects different types of self-talk have on performance. Research on the effectiveness of self-talk has examined and compared the effects of different types of self-talk in experimental tasks. Theodorakis, Weinberg, Natsis, Douma, and Kazakas (2000) speculated that instructional self-talk should be more beneficial for fine tasks (tasks placing greater demands on accuracy and precision), whereas motivational self-talk should be more beneficial for gross tasks (tasks placing greater emphasis on strength and endurance). Subsequently they examined the effectiveness of motivational and instructional self-talk in four experimental tasks, which were characterised as fine (passing accuracy in football and serving accuracy in badminton) or gross (3-min sit-up test and knee extension power test). The results revealed that instructional self-talk improved the performance for the two accuracy tasks and the knee extension task, whereas motivational self-talk improved performance for the knee extension task only. In a similar experiment, Hatzigeorgiadis et al. (2004) tested the effectiveness of self-talk in a precision and a power water-polo task. Instructional self-talk improved performance for the precision task more than motivational self-talk, whereas only motivational self-talk improved performance for the power task. In general, even though the evidence is not conclusive, these findings suggest that different types of self-talk may have different effects on task performance based on the nature of the task and the type of self-talk that is used.

Stemming from such findings, Hatzigeorgiadis, Zourbanos, and Theodorakis (2007) suggested that if different self-talk cues have different performance effects, different types of self-talk should serve different functions. Zinsser et al. (2006) claimed that instructional self-talk should be effective in enhancing attentional focus and directing attention, whereas motivational self-talk should be more effective in enhancing motivation, building self-confidence and regulating effort. Two studies have examined whether different types of self-talk serve different functions. Hatzigeorgiadis (2006) examined participants' perceptions regarding the use of instructional and motivational self-talk after implementing a three-day self-talk training program in a swimming task. According to participants' perceptions both types of self-talk mainly helped them to improve their attention to the task. Furthermore, participants reported that the motivational self-talk cue had greater impact on effort than the instructional self-talk cue. In a similar experiment, Hatzigeorgiadis et al. (2007), in addition to participants' perceptions regarding the facilitative effects of self-talk, examined self-confidence, anxiety symptoms and frequency of interfering thoughts in the baseline (no self-talk) and experimental trials (instructional and motivational self-talk). The results revealed that the motivational self-talk cue was more effective in reducing anxiety than the instructional self-talk cue. Furthermore, participants reported that the use of both cues mainly helped them concentrate better on the task. The authors concluded that the effectiveness of self-talk can be attributed mainly to its attention function, at least in the case of novel tasks, but also that motivational self-talk is more effective in reducing anxiety than instructional self-talk. Subsequently they suggested that self-talk content moderates self-talk functions, that is, different types of self-talk may serve different functions depending on the content of the self-talk cues. Nevertheless, it should be noted that in the above experiments (a) students were recruited and not athletes, and (b) within subjects differences were examined in the use of different self-talk types, without the use of control groups.

The purpose of the present study was to examine whether the use of motivational self-talk can increase self-confidence, reduce anxiety and enhance task performance in athletes. The beneficial