Psychology of Sport and Exercise 15 (2014) 139–145

Contents lists available at ScienceDirect

Psychology of Sport and Exercise

journal homepage: www.elsevier.com/locate/psychsport

Self-talk and softball performance: The role of self-talk nature, motor task characteristics, and self-efficacy in novice softball players

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ARTICLE INFO

Article history:
Received 11 July 2013
Received in revised form
8 October 2013
Accepted 8 October 2013
Available online 16 October 2013

Keywords:
Instructional self-talk
Motivational self-talk
Psychological skill
Softball throwing

ABSTRACT

Objectives: To determine the effect of self-talk on softball throwing performance. Additionally, two moderators, nature of self-talk and type of motor task, as well as a potential mediator of self-efficacy were examined.
Deign: An experimental, within-subjects, and counterbalanced design.
Methods: Forty-two senior high students (mean age = 17.48 ± 0.55) were instructed to use instructional, motivational, and unrelated self-talk with counterbalanced order prior to softball throwing for accuracy and distance tasks.
Results: Both instructional and motivational self-talk conditions had better performance than unrelated self-talk on softball throwing accuracy, whereas motivational self-talk had better performance than both instructional and unrelated self-talk in softball throwing for distance. Results for self-efficacy were similar, with self-efficacy for accuracy performance higher in both instructional and motivational self-talk conditions than with unrelated self-talk, while self-efficacy was highest in the motivational self-talk condition and lowest with unrelated self-talk. Significant correlations between self-efficacy and motor performance were also found with both tasks.
Conclusion: These findings partially support the task-matching hypothesis, confirm the moderator role of type of self-talk and task type, suggest that self-efficacy has a mediator role, and provide direction for self-talk effectiveness.

Self-talk is a cognitive strategy and essential psychological skill for enchaining performance. While a few scholars argue that the effect of self-talk on competitive sport is limited (Boroujeni & Shahbazi, 2011; Goudas, Hatzidimitrious, & Kikidi, 2006), considerable empirical research has demonstrated that self-talk facilitates varied sport and motor performances (Edwards, Tod, & McGuigan, 2008; Kolovelonis, Goudas, & Dermitzaki, 2011; Weinberg, Miller, & Horn, 2012). The benefits of self-talk have been further supported by both narrative and systematic reviews (Hardy, 2006; Tod, Hardy, & Oliver, 2011). In fact, a recent meta-analytic review concluded that self-talk had a significant and positive effect with moderate magnitude on performance (effect size, ES = 0.48) (Hatzigeorgiadis, Zourbanos, Galanis, & Theodorakis, 2011).

It should be noted, however, that the effect sizes of the meta-analysis had a wide range (ES ranged from 0.22 to 1.31), suggesting that some unexamined factors influence self-talk and performance. Hardy (2006) indicated that self-talk is difficulty to define as a single construct, and suggested that self-talk be considered as a) statements to the self, b) multidimensional, c) having interpretive elements associated with the statements, d) dynamic, and e) serve at least instructive and motivational functions. These multiple characteristics provide guides for further investigation of the relationship between self-talk and performance. Indeed, Tod et al. (2011) argued that researchers should shift their focus from "first-generation questions", that is, examination of self-talk effects on performance, to "second-generation questions", that is, investigation of moderators and mediators underlying the relationship. Herein, the present study emphasizes two moderators, nature of self-talk and type of motor task, as well as a mediator, self-efficacy, to add to the current knowledge base.

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1469-0292/$ – see front matter © 2013 Published by Elsevier Ltd.
http://dx.doi.org/10.1016/j.psychsport.2013.10.004

Other than early studies examining the differences between positive and negative self-talk (Dagrou, Gauvin, & Halliwell, 1992; Van Raalte, Brewer, Lewis, & Linder, 1995), research on the nature of self-talk has emphasized the investigation of instructional and motivational self-talk (Beneka et al., 2013; Boroujeni & Shahbazi, 2011; Edwards et al., 2008; Hatzigeorgiadis, Theodorakis, & Zourbanos, 2004; Kolovelonis et al., 2011; Tod, Thatcher, McGuigan, & Thatcher, 2009). Instructional self-talk focuses on technical, tactical, or kinesthetic demands of performance, whereas motivational self-talk is associated with controlling arousal, preparing for mastery, and increasing effort devoted to the task (Hardy, 2006; Hardy, Gammage, & Hall, 2001; Hatzigeorgiadis et al., 2004). Given the differences between instructional and motivational self-talk, it is possible that the impact on performance depends on nature of self-talk as well as the task.

From a series of laboratory experiments, Theodorakis, Weinberg, Natsis, Douma, and Kazakas (2000) found that an instructional self-task group, compared to motivational self-talk and control groups, demonstrated better performance on tasks requiring fine motor skills (e.g., soccer accuracy pass). In contrast, both instructional and motivational self-talk led to improvement on tasks that involved gross motor characteristics (e.g., muscular strength) compared to a control group. Similar results were found with a novice skill in swimming (Hatzigeorgiadis et al., 2004); although both self-talk types showed better performances on an accuracy task (i.e., throwing a ball toward to target) compared to control group, instructional self-talk group had the greatest impact. Conversely, improved performance on a power task (throwing a ball for distance) was only found in the motivational self-talk group. These studies lead to the "task-matching hypothesis", which suggests that instructional and motivational self-talk are associated with specific tasks requiring fine- and gross-skills, respectively (Hardy, Oliver, & Tod, 2009; Hatzigeorgiadis et al., 2011).

Notably, research on the matching hypothesis has produced equivocal results. For example, Harvey, Van Raalte, and Brewer (2002) indicated that individuals in an instructional self-talk group failed to demonstrate differences compared to a control group on golf pitching accuracy. In addition, while improvements from pre- to post-test were identified, no differences were found among instructional, motivational, and combined self-talk groups on a one-mile run test (Weinberg et al., 2012). In contrast, Kolovelonis et al. (2011) indicated both instructional and motivational self-talk improved chest-pass (fine-motor) performance, with no difference between groups. Similar results of enhanced performance with no differences between the two conditions were also observed in a gross-motor task including center-of-mass displacement, impulse, and angler rotation of vertical jump height (Tod et al., 2009). Although one meta-analytic review supported the matching hypothesis (Hatzigeorgiadis et al., 2011), another recent systematic review reported lack of support for the matching hypothesis, concluding that both types of self-talk facilitate performance regardless of task characteristics (Tod et al., 2011). These inconsistent conclusions, and the fact that only a few studies involved in systematic and meta-analytic reviews have adequately tested the task-matching hypothesis with appropriate self-talk nature and task types simultaneously (Hatzigeorgiadis et al., 2011; Tod et al., 2011), suggest the need for further research. Therefore, the current study examines the role of self-talk nature and task characteristics in the relationship between self-talk and motor performance fully taking into account these factors.

Previous studies examined self-talk and performance with athletes including cross-country runners (Weinberg et al., 2012), soccer players (Johnson, Hrycaiko, Johnson, & Halas, 2004), rugby union athletes (Edwards et al., 2008), volleyball players (Zetou, Vernadakis, Bebetsos, & Makrari, 2012) and athletes in diverse sports (Hardy, Craig, & Hardy, 2004); however, only a few studies have examined the benefits of self-talk – with the general population, such as preadolescent students (Kolovelonis et al., 2011; Kolovelonis, Goudas, & Dermitzaki, 2012) and undergraduate students (Oliver, Markland, & Hardy, 2010). Specifically, Kolovelonis and colleagues indicated that self-talk, of either type or combined with other psychological skills (i.e., goal setting), can be an effective cognitive strategy to enhance performance among students in physical education settings (Kolovelonis et al., 2011, 2012). Indeed, Hatzigeorgiadis et al. (2011) showed that students generally have greater benefits of self-talk compared to novice and experienced athletes. Along with these positive effects found in preadolescent and undergraduate students, the present study focuses on adolescent students to extend the knowledge base on self-talk and physical education.

As well as examining nature of self-talk and task type, the current study examines self-efficacy as a mediator between self-talk and performance. Self-efficacy, defined as belief in one's capabilities to accomplish a task in a particular situation or situation-specific self-confidence (Bandura, 1977), has been strongly linked to performance in sport settings (Feltz, Short, & Sullivan, 2008). According to classical self-efficacy theory proposed by Bandura (1997), self-efficacy is affected by four major sources: past performance achievement, vicarious experience, verbal persuasion, and physiological state, and self-talk is particularly relevant to verbal persuasion. With a single-case, multiple baseline design, Landin and Hebert (1999) found that instructional self-talk could increase self-efficacy in a tennis task, providing preliminary support. Recently, Hatzigeorgiadis and colleagues implemented motivational self-talk training and observed that the training improved not only tennis performance, but also elevated self-efficacy (Hatzigeorgiadis, Zourbanos, Goltsios, & Theodorakis, 2008) and self-confidence (Hatzigeorgiadis, Zourbanos, Mpoumpaki, & Theodorakis, 2009). In addition, positive correlations between self-efficacy, self-confidence, and performance were also found (Hatzigeorgiadis et al., 2008, 2009). These findings suggest that self-efficacy may mediate the self-talk and performance relationship. It is also important to consider the type/combination of self-talk and specific task characteristics to determine the role of self-efficacy in relation to the task-matching hypothesis (Hatzigeorgiadis et al., 2008, 2009; Zetou et al., 2012).

Accordingly, the primary purpose of the present study was to examine the effect of self-talk on motor performance and whether the nature of self-talk or type of motor task would moderate the relationship between self-talk and performance. Specifically, two distinct types of self-talk, instructional and motivational, as well as two softball throwing tasks, throwing for accuracy (fine-motor) and throwing for distance (gross-motor) were examined. The second purpose was to investigate the role of self-efficacy in the relationship of self-talk and performance. In line with the task-matching hypothesis, it was hypothesized that instructional self-talk would result in better performance as well as higher self-efficacy on the fine-motor task, whereas motivational self-talk would show the greater performance and higher self-efficacy for the gross-motor task.

Method

Participants

Forty-two second-year senior high students (age range 15–18 years; $n = 11$ girls, $n = 31$ boys) were recruited from a local city in Taoyuan county, Taiwan. The participants had limited softball experience but were currently taking a softball class that met one time (50 min) per week for 10 weeks instructed by a coach of the