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# The effect of self-talk on a basketball shooting task

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Summary: This study examined the effectiveness of two different types of self-talk on the performance of a basketball shooting task. Sixty physical education and sports sciences students were organized into one control and two treatment groups which used self-talk. During the

experiment, the control group performed with the same general instructions, whereas the self-talk groups used the cue-words “relax” and “fast,” respectively. Results showed that only the participants of the self-talk group that used the word “relax” improved their performance significantly as compared to the other two groups. It appears that self-talk can positively affect performance if its content is appropriate for the task performed.

KEY WORDS: Self-talk, basketball shot, performance.

Gaining the competitive edge is a goal sought from youth sport to elite athletes and coaches. This competitive edge, among other things, provides the necessary mental toughness and readiness for handling competition, as athletes learn ways to manage stress, to enhance confidence, to control concentration, to improve communication skills and team cohesion. Hence, various intervention techniques are being used to enhance performance and personal growth. Cognitive techniques such as imagery, goal-setting, relaxation training, arousal regulation, and self-talk have been found to be effective for individual athletes in certain situations. In recent years, ample data has been gathered from Olympic-level athletes, which reports that successful athletes use cognitive strategies more frequently as compared to the less successful ones (Gould, Eklund, & Jackson, 1993; Orlick & Partington, 1988).

Cognitive strategies involve active mental processes which are designed to modify and/or influence existing thought and affect patterns. Self-talk is one of the various cognitive strategies employed by athletes and coaches, which describes what individuals say to themselves (i.e., one’s internal dialogue) in order to think more solidly and to direct their behaviors and actions (Zinsser, Bunker, & Williams, 1998). Self-talk can be manifested in verbal or non-verbal ways, in the form of

a word, a thought, a smile, a frown, etc. (Chroni, 1997). Based on the existing literature, self-talk tends to be positive or negative, rarely neutral (Sellars, 1997), and frequently results respectively in a positive or negative effect on one's performance. Several studies and anecdotal reports have suggested that self-talk can be beneficial to one's performance, as it can be employed to enhance motivation, to build confidence, and to prepare athletes for the upcoming performance (Van Raalte, Brewer, Rivera, & Petitpas, 1994; Weinberg, Grove, & Jackson, 1992).

Positive self-statements can be used to trigger desired actions, to provide self-reward, to increase effort, to control attention, anxiety, and arousal, as well as to aid in injury rehabilitation (Hardy, Jones, & Gould, 1996). On the other side, negative self-talk generally includes inappropriate, irrational, anxiety-producing, or even fear-provoking statements that debilitate athletic performance. Sport psychology consultants promote self-talk as a cognitive strategy that builds on recurrent positive statements and thoughts (Zinsser, et al., 1998). However, in the recent sport literature, researchers who conducted self-report and descriptive studies on self-talk have reported equivocal findings.

Sport studies that examined self-reported self-talk provided mixed results. Dargou, Gauvin, and Halliwell (1991) found that according to Ivory Coast athletes' reports, self-talk did not differ between their best and worst matches. On the other side, Highlen and Bennet (1983) reported that qualifying wrestlers used more critical self-talk as compared to the wrestlers who did not qualify. Van Raalte et al. (1994) discussed that the observed and self-reported negative self-talk was associated with losing in junior tennis players, whereas there was no association between positive self-talk and winning.

For this lack of support for positive self-talk as a performance enhancement technique, in some of the aforementioned investigations, Hardy et al. (1996) argued that it was not surprising, if

one considers the obvious difficulties in carrying out relevant empirical work. Nonetheless, certain descriptive studies also fell short in supporting the effectiveness of the self-talk intervention. For example, Meyers, Schleser, Cooke, and Cuvillier (1979) found no differences in acquisition of gymnastics skills between groups that used various types of self-talk. Palmer (1992) also reported that self-talk was not effective in improving performance in figure skating skills. On the contrary, several early descriptive studies provided evidence for the effectiveness of positive self-talk in improving performance of endurance tasks, or tasks from sports like basketball, tennis, and skiing (Hamilton & Fremour, 1985; Rushall, Hall, Roux, Sasseville, & Rushall, 1988; Weinberg, Smith, Jackson, & Gould, 1984; Ziegler, 1987).

More recently conducted studies continued to provide support for the effectiveness of self-talk. Van Raalte et al. (1995) discussed the effectiveness of positive self-talk on a dart-throwing task, where participants who used negative self-talk performed significantly lower. Ming and Martin (1996) also found that novice figure skaters who were instructed to use self-talk improved their performance in compulsory figures. Mallett and Hanrahan (1997) described the positive effect on producing faster times and consistent performances that a sport-specific cognitive race-plan had on the 100m run. In a study by Thomas and Fogarty (1997), the positive effects that imagery and self-talk interventions had on amateur golfers' psychological skills and performance were reported. Recently, Theodorakis, Weinberg, Natsis, Douma, and Kazakas (2000) examined the effect of motivational and instructional self-talk on four different tasks (soccer accuracy, badminton service, sit-up, and knee extension). They reported that when the task required a fine motor movement, instructional self-talk seemed more appropriate, yet in a strength and endurance task both types of self-talk were effective. Furthermore, Theodorakis, Beneca, Goudas, Antoniou, and Malliou (1998)

provided evidence for the self-talk technique as a beneficial one to performance enhancement during injury rehabilitation.

In summarizing the literature, which seems to be growing in the recent years, extensive support is given of the effectiveness of self-talk as a cognitive strategy for enhancing athletic performance. However, Hardy et al. (1996) discussed that given the important role of self-talk in sport performance, the amount of systematic research in this area is rather disappointing. According to Ming and Martin (1996), it is important that self-talk is simplified to include only a few key words and that participants be asked whether they actually use self-talk when practicing. In due course, simplicity in self-talk and the need for more research geared toward exploring self-talk effectiveness on different types of skill characteristics, guided the design of this project.

Little empirical research has been conducted in the sport domain focusing on the influence that different types of self-talk may have on the speed and accuracy components of skill execution. In real basketball situations, both speed and accuracy are important factors for the outcome of the shot. When the player emphasizes speed, accuracy may be reduced, and when accuracy is emphasized, speed suffers due to the distraction that occurs. Given that one of the aims of self-talk is to enhance performance through regulation of task execution, the purpose of this study was to examine the affect that two different types of self-talk ("relax" and "fast") had on individual performances. In order to examine our hypothesis, a specific test of basketball shooting was selected, with two opposing components (speed and accuracy), which may lead to disruption. Based on the clear meaning of the words "fast" and "relax" in Greek language, it was hypothesized that participants using the word "relax" (regulates speed and increases accuracy) will perform differently than participants using the word "fast" (enhances speed and reduces accuracy), and participants who did not use the self-talk technique.

## Method

### Participants

Sixty male undergraduate physical education and sport science students participated in this study. All participants had previously successfully completed a three-credit semester-long course in basketball, and thus were all cognizant of the basketball shooting technique and were all competent in correct execution, regardless of the shot's outcome. The students' age varied from 18 to 22 years ($M$ = 19.3 yr., $SD$ = 0.8). All students participated voluntarily.

### Procedures

The participants were randomly assigned into one control and two self-talk groups. They were asked to shoot for three minutes, from a 4.5-meter distance to the hoop, taking five different positions (specified to the participants) on the 4.5m perimeter. Initially, all groups received the same general instruction to "execute as many successful shots as possible within 3 minutes" and completed the first three-minute trial. Upon its completion, they rested for 20 minutes. Subsequently, the two self-talk groups received in private, new, specific instructions. One group was asked to repeat the cue-word "relax" prior to taking every shot (Relax group), while the other group was instructed to use the cue-word "fast" (Fast group). The words "fast" and "relax" were chosen, as they are relevant to the movement and execution components of the basketball shot. The Control group received the same general instruction as in the first trial. All three groups completed two additional three-minute trials with a 20-minute rest period between trials. Number of successful shots was chosen as the only performance criterion since in a real basketball game only the successful (i.e., accurate) shots are awarded points.

## Results

Descriptive statistics were computed for the performance scores. Mean scores for the number of (total and successful) shots within each trial are presented in Table 1. In considering the total number of shots taken by each group one way ANOVA's where computed. No differences were found between the three groups. Again, in considering the number of successful shots one way ANOVA's where computed. For the first trial, there were no significant differences in performance between the three groups before the experimental manipulation ($F(2,56) = .034$). Homogeneity of variance was obtained and a mixed-model ANOVA was performed with trial (3 levels) as a within subject factor and group (3 levels) as between subjects factor. Mauchly's test of Sphericity was not significant, which confirmed the appropriateness of the test.

Results indicated significant group effects, with post hoc tests revealing that the Relax group, performed better than the other two groups in the third trial ($F(2,56) = 3.44$, $p < .03$). Results also revealed a significant main effect of trial ($F(2,56) = 11.66$, $p < .001$). More specifically, post hoc tests indicated significant performance differences between the first ($M = 18.82$) and second trials ($M = 20.77$; $p < .001$) and between the first and third ($M = 21.36$; $p < .001$) trials. Finally, results revealed a significant Group x Trial interaction ($F(2,56) = 6.01$, $p < .002$). Scheffé's post hoc tests were used to calculate simple main effects. Results showed that the performance score of the Relax group in the third trial was significantly higher ($F(2,56) = 12.52$, $p < .001$) than the score of the Control group. No significant performance differences were found between Control group and the Fast group. More specifically, mean scores in the Fast group showed a significant ($p < .01$) decrease in performance (in the third trial), when compared to Relax group.

## Discussion

According to the sport psychology literature, self-talk is defined as internal dialogue that influences actions and emotional states. In several studies reviewed here, positive self-talk was

found to be associated with enhanced performance and optimal emotional states, while apparently in others it had no effect. In the present study, the effectiveness of different types of self-talk on a basketball-shooting task was examined and results indicated a significant effect on participants' performance. Indeed, the two different types of self-talk utilized had a different impact on performance. The group which used the word "relax" was able to improve performance, while the group which was instructed to use the word "fast" did not improve.

Zinsser et al. (1998) suggested that relevant and appropriate thoughts prior to performance have a positive affect on self-paced skills. Moreover, one needs to consider that self-talk may become a distraction from the task at hand if it is too frequent and disrupts automation of execution. According to Moore and Stevenson (1991), the absence of automation may negatively affect one's trust in execution. Hence, for most athletes, this signifies that their self-talk should also focus on a desired feeling and a trusting mindset. For a basketball shooter it seems important to be relaxed, focused on the task, and capable of controlling the execution, instead of being harried and not well focused. Nonetheless, this study may be limited by the fact that manipulation check for the use of self-talk by participants was not conducted.

In conclusion, the findings of the present study suggest that cognitive interventions such as self-talk can positively affect performance if its content is appropriate to the task performed. Previous studies have reported self-talk as an effective intervention technique for enhancing performance, a finding that the present study appears to support. Yet, researchers have not investigated the effect of self-talk on participants' execution of skills. Although our study provides additional data on the effectiveness of self-talk and the importance of its content, it also opened one more door for future research on self-talk and its relation to speed of execution.

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Table 1

Descriptive Statistics for Performance Scores

| | Trials | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | First trial | | | | Second trial | | | | third trial | | | |
| | Total n of shots | | N of successful shots | | Total n of shots | | N of successful shots | | Total n of shots | | N of successful shots | |
| Groups | M | SD | M | SD | M | SD | M | SD | M | SD | M | SD |
| Control | 52.38 | 4.32 | 19.00 | 6.74 | 53.50 | 4.36 | 20.50 | 5.24 | 53.05 | 5.09 | 20.22 | 5.83 |
| Relax | 52.45 | 5.12 | 18.00 | 6.49 | 53.50 | 4.37 | 20.75 | 6.26 | 53.40 | 4.76 | 23.90 | 4.81 |
| Fast | 52.42 | 4.18 | 19.52 | 5.69 | 55.84 | 5.05 | 21.05 | 6.87 | 55.10 | 3.72 | 19.78 | 5.49 |