

## Original Article

# The effect of self-talk in learning the volleyball service skill and self-efficacy improvement

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## ABSTRACT

Zetou E, Vernadakis N, Bebetos E, Makraki E. The effect of self-talk in learning the volleyball service skill and self-efficacy improvement. *J. Hum. Sport Exerc.* Vol. 7, No. 4, pp. 794-805, 2012. In this study the effect of self-talk on learning the volleyball service skill was examined and also the self-efficacy improvement. Participants were 57 female players 13 years old (mean age =12.83, SD=0.97) with two years experience (M=1.99, SD=0.67). Prior to the beginning of the program, participants were randomly assigned into two groups: a. the instructional self-talk group (ISTG, n = 28) and b. the control (traditional) group (CG, n = 29). All athletes followed a four-week practice program, aiming at overhand service skill learning and self-efficacy improvement. The program consisted of two practice units (60 min) per week. Participants of ISTG were taught to use the self-talk (for technique) loud before they performed the service drills. The control group received traditional feedback, that is, knowledge of performance and knowledge of results provided by the instructor. Service performance was assessed by videotaped evaluations in five basic elements of skill. There were three measurement periods for field test: pre-, post- and retention tests (one week after post-test). ANOVA repeated measures revealed significant interaction between groups and measures. There was also significant interaction between groups and self-efficacy scores. The results indicated that participants of the ISTG had better scores in the final measurement than the control group, when technique was evaluated and improved also their self-efficacy. In conclusion the Self-talk helps female volleyball athletes to improve performance and learning of overhand service skill and to improve also their self-efficacy. This study adds some useful elements to practitioners and how they used self-talk in the practice. **Key words:** SELF-TALK; SKILL LEARNING; SERVICE; VOLLEYBALL; SELF-EFFICACY.

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## INTRODUCTION

In sport psychology research support the use of mental skill training for improving sport performance, including for improvements in concentration, imagery, positive thinking and self-talk (Wanlin et al., 1997; Ming & Martin, 1996; Orlick, 1986). One of the most commonly used strategies is that of self-talk (Gould et al., 1993; Madigan et al., 1992). It has been suggested that self-talk interventions and procedures are some of the most widely applied and effective strategies used by athletes (Hatzigeorgiadis et al., 2011; Park, 2000; Weinberg et al., 1992).

Hackfort and Schwenkmezger (1993) defined self-talk as “an internal dialogue, [in which] the individual interprets feelings and perceptions, regulates and changes evaluations and convictions, and gives him/herself instructions and reinforcement” (p. 355). Self talk is the talking of somebody to him/herself either by talking loudly or from inside; is the procedure of thoughts usually become unconsciously and affects emotions and athletes’ actions/behaviors (Morris & Andersen, 2007; Hatzigeorgiadis et al., 2004; Johnson et al., 2004). With regard to what kind of self-talk (internal or out-loud) could researchers used to their interventions, Ming and Martin, (1996) preferred external self-talk to ensure that self-talk cues were actually used. In many studies participants have been advised to choice between internal and external self-talk (Harvey et al., 2002).

Self talk could be positive, negative or neutral (Hatzigeorgiadis et al., 2004; Theodorakis et al., 2000). Athletes, who use their thoughts correctly, help themselves to get the highest of their performances (Papaioannou et al., 1999). On the contrast athletes who use negative thoughts create stress (Lodge et al., 1998), decrease their performance and derive the athlete from feeling pleasant from their participation to the sport activity. The role of self-talk in sport performance has been discussed widely in the literature (Landin & Hebert, 1999; Landin, 1994; Rushall, 1984). Self-talk has been found to have a positive effect on performance with a variety of sports including: basketball (Perkos et al., 2002; Kendall et al., 1990), soccer (Papaioannou et al., 2004), tennis (McPherson, 2000; Landin & Hebert, 1999; McPherson, 2000; Defrancesco & Burke, 1997; Van Raalte et al., 1994; Weinberg & Jackson, 1990) water polo (Hatzigeorgiadis et al., 2004), golf (Harvey et al., 2002; Kirschenbaum et al., 1998; Thomas & Fogarty, 1997), cricket (Holt, 2003; Slogrove et al., 2003), figure skating (Palmer, 1992; Ming & Martin, 1996), ice hockey (Botterill, 1990; Halliwell, 1990), swimming (Wang et al., 2003), wrestling (Highlen & Bennett, 1983), endurance running (Weinberg et al., 1984), and endurance performance (Hamilton et al., 2007).

Positive self talk is divided in two categories: positive self talk for motivation and positive self talk for technical instruction. Positive self talk of motivation includes words such as: “strong...”, “keep up...”, “let’s go...”, “I can...” and others that target to make the athlete more active. While positive self talk for technical instruction includes “key words” or phrases that have to do with the right technique of the skill, such as: “I can see the target...”, “elbow up...”, “calm....” and many more. According to Zinsser, Bunker, and Williams (2001) self-talk influences performance in a number of ways including the acquisition of skills, the development of self-confidence, and the self-regulation of habits. In contrast Hardy, Hall, and Alexander, (2001) suggested that negative self-talk may motivate some athletes.

Theodorakis et al. (2000) extended this approach by examining the influence of instructional versus motivational self-talk on various motor skills. It was found that both self-talk strategies are effective on improving performance. However, instructional self-talk was found to be more effective than motivational self-talk on fine motor skills, while both motivational and instructional self-talk to be equally effective on motor skills requiring strength and endurance (Theodorakis et al., 2000).

Instructional self-talk has been found to be beneficial for tennis players' volleying (Landin & Hebert, 1999) and ground stroke skills (Ziegler, 1897), as well as for 100 m sprinting (Mallett & Hanrahan, 1997). Skills that required refined movements, such as shoot in basketball self-talk of technical instruction had better results. While with skills requiring strength, motivational self-talk was more effective (Hatzigeorgiadis, Theodorakis & Zourbanos, 2004). Perkos et al. (2002) examined the effectiveness of a self-talk intervention program on basketball skills. The results revealed that instructional self-talk was effective for a dribbling and a passing test, but not for a shooting test. The researchers attributed the lack of effect for the shooting to the complexity of the task, and the suitability of the selected cues related to the task.

Additionally et al. (2007) conducted 21 polo female athletes, was found that self-talk has positive results in the increase of athletes attention to the goal. Adding to that many of the female athletes reported that self-talk helped them to try harder in order to increase self-confidence and decrease stress and negative thoughts.

Many athletes are not able to perform their full potential ability. The cause of this phenomenon is often lack of self-confidence. Self-confidence is the athletes' expectation that they can be successful, is the belief/faith to themselves and their abilities. Self-confidence by itself however is not always enough, if athletes don't have the required abilities; no matter how hard they try, they won't succeed (Martens, 1987).

Many studies in the sport psychology domain have dealt with self-confidence and its relation to the self-talk (Hanton et al., 2004; Morris & Andersen, 2007). Positive thinking and positive answers lead the person to an ideal state/level of self-confidence, having as a result correct and refine actions/behaviours leading to positive result (Morris & Andersen, 2007; Hatzigeorgiadis et al., 2007; Johnson et al., 2004). Bandura (1997) uses the term "self-efficacy" to describe the conviction one has to execute successfully the behavior (e.g., a sports performance) required to produce a certain outcome (e.g., a performance score) and, thus, can be considered as a situational specific self-confidence. In addition, as Bandura (1997) notes, self-efficacy is not concerned with the skills an individual has but with the judgments of what an individual can do with the skills he or she possesses.

Wilkes and Summers (1984) found that self-efficacy techniques (positive self-talk) influenced performance. On the other side some criticisms have focused on the methods by which self-efficacy ratings are made (Biglan, 1987; Kazdin, 1978; Kirsch, 1980; Kirsch, & Wickless, 1983) and that research on self-efficacy in numerous sport and physical activity settings has shown a consistent significant relationship between self-efficacy and performance. In the present study the term self-efficacy was used expressing the participants' self-confidence to perform the service skill technique. Studies that have been conducted to investigate the causal relationships in Bandura's theory of athletic activities (Feltz, 1982, 1988; Feltz & Mugno, 1983) have been consistent in showing that performance factors and perceived self-efficacy are both need to explain performance. Recently researchers combine self-talk with psychological skills, as goal setting and self regulation having positive results on students' performance (Kolovelonis et al., 2012).

However, it doesn't know enough the effect of self-talk on volleyball skill performance. The relation between self-talk and athlete self-efficacy also is not known yet and how it affects athletes' performance. Therefore, the aim of the present study was to identify the effect of positive self-talk for technical instruction in learning the volleyball service skill and the improvement of volleyball athletes' self-efficacy. On the basis of the research literature it was hypothesized that self-talk would improve volleyball service skill learning and also athletes' self-efficacy.

## MATERIAL AND METHODS

### *Participants*

Participants were 57 female volleyball players, 13 years old ( $M=12.83$ ,  $SD=.97$ ) and training experience of two years ( $M=1.99$ ,  $SD=0.67$ ). Participants were novices in overhand service (they were teach overhand service for first time). The participants were assigned in two groups, experimental (athletes of one sport club,  $n=28$ , ISTG, instructional self-talk) and control group (athletes of another sport club,  $n=29$ , CG, traditional teaching) and they were taught the volleyball overhand service skill. The athletes participated in the experiment after having obtained written permission from their parents.

### *Measures*

Three measurements were taken. More specifically, the athletes were measured at the beginning in order to establish that all started at the same level of technique and self-efficacy (pre-test). After the completion of the intervention the final measurements were taken, to note the impact of the intervention on the players' performance in service skill (post-test). One week later, in which athletes didn't practice at all, the retention measurement was made, to establish whether the learned skill of the volleyball overhand service had been maintained (retention test).

In the first training unit, after the warm up, participants performed a set of five trials (warm up in service). Afterwards, the evaluation test of service was conducted. The participants performed 10 attempts, while in the mean time all the attempts of participants were videotaped. The instruction that was given to all participants before the attempts was: "do the best you can...". The video camera was placed 6m distance and in 45o angle on the right of each participant (if the participant used the left hand, the video camera was placed in the left, in the same distance and angle).

Next day, the participants were informed about their scores in the test, and they filled out the self-efficacy questionnaire (Theodorakis, 1996). After four weeks of intervention program there was a second measurement in overhand service skill technique and the self-efficacy questionnaire was fulfilled once more by the athletes. The third measurement (retention test) of service technique and also the self-efficacy questionnaire was fulfilled a week after the post-test without practice (in service skill).

### *Instruments*

#### *Evaluation of technique*

In order to evaluate athletes' ability in service technique, they were videotaped while executing 10 attempts. Two experts in volleyball (volleyball coaches) observed the video and they evaluated the athletes' performance in five technical elements of the skill. Intra and inter reliability of observers was checked (test-retest reliability). The score in the check list (five technical elements), was "one" for correct and "zero" for the wrong performance. The perfect performance was evaluated as 50 points [10 attempts X (5 elements X 1 point)].

#### *Evaluation of self-efficacy*

A common format for evaluating perceived self-efficacy was used (Theodorakis et al., 2000; Theodorakis, 1996). Participants were informed on their scores in performance on the service test and then indicated their performance of self-efficacy by responding to question such as "In this specific test of service, I can achieve a score of....." they indicated the magnitude of self-efficacy by replying to the question. "How certain you are?" on a 10-point scale anchored by absolutely certain (10) and uncertain (1). Subjects rated

their self-efficacy estimations for performance levels ranging from 10 to 40. Cronbach's alpha was 0.76, 0.79, and 0.81 for the three measurements, respectively.

#### *Reliability of instruments*

To examine the reliability of measurements test-retest reliability method was used (Pearson,  $r > 0.8$ ). Correlation Pearson's analysis between two groups revealed that there was significant correlation between first and second measure in service technique ( $r=0.95$ ) and self-efficacy questionnaire ( $r=0.88$ ), which certify the reliability of measurements.

#### *Observers' reliability*

The two observers were volleyball athletes for ten years, students of volleyball specialization of department of sport science and they were also juniors' volleyball coaches for three years. They were trained by the first author of study who was an expert coach in volleyball. During the evaluation they didn't know if the athletes were in experiment or control group. The intra-observer reliability test was assessed with the observation and recording in one day of ten athletes in the experiment and the observation and recording of the same athletes on the following day by the same observer. The first and second evaluation of observer was correlated and the correlation was significantly high ( $r=0.86$ ). The inter observer reliability test was assessed with observation and recording the same ten athletes by two observers. The coefficient correlation was relatively high ( $r=0.78$ ).

#### *Practice procedure*

Before the intervention program, in the first unit, participants of experimental group received an informational sheet where the description of the correct technique of service was given and there was also information on what is self-talk and how it works. After that, in the main part of training unit four sets (four drills) of ten repetitions were conducted. The whole intervention program lasted four weeks, two training sessions per week. Participants of the control group performed the program having in mind the instruction "perform as best as you can...". In the beginning of each training session the coach provided verbal information feedback (in five technique elements of service skill) to the participants.

Participants of the experimental group received the instruction to use the self-talk for technique "when I throw the ball, the arm goes back, over the head, look at the target and hit the ball..." which was replaced later with "target, throw, and hit...". In the beginning of the training, coach reminded them to use self-talk out loud. Participants of both groups performed four drills (X10 services) in each training session for improving the service technique.

#### **Statistical analysis**

SPSS for Windows 13.0 was used for the analysis of the results. Homogeneity of variance was obtained and ANOVA Repeated Measures (2 group X 3 measures) analysis was used. Mauchly's test of Sphericity was not significant, which confirmed the appropriateness of the test.

## **RESULTS**

#### *Initial analysis*

T-test analysis for Independent samples revealed that there were no significant differences in service skill performance between the groups for the baseline measure ( $p=0.213$ ) and self-efficacy ( $p=0.291$ ), which means that participants were started of the same level of learning and self-efficacy. In table 1 are shown the means and standard deviations of groups in the baseline measurement.

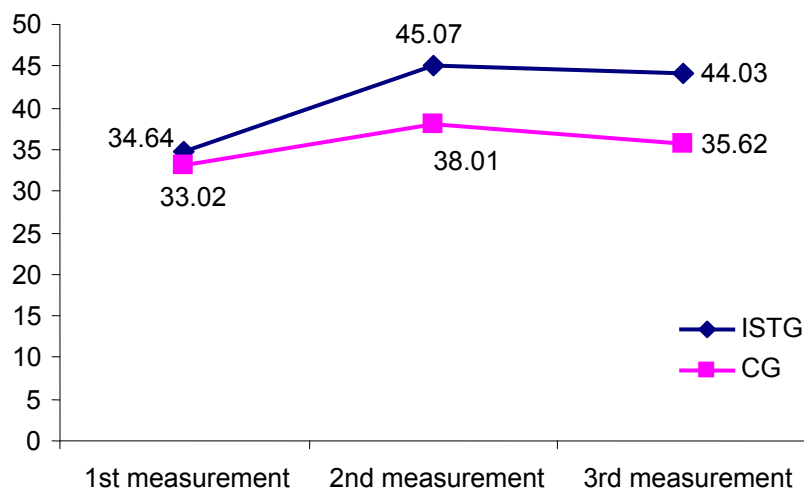
**Table 1.** Means and standard deviations of groups in the baseline measurement.

	Group	N	M	SD	t(55)
Service skill technique	ISTG	28	34.44	5.29	1.26
	CG	29	33.97	4.41	p=0.213
	Total	57	33.97	4.88	
Self-efficacy	ISTG	28	4.57	1.6	1.07
	CG	29	4.15	1.32	p=0.291
	Total	57	4.36	1.47	

*Self-talk effect in service skill learning*

ANOVA Repeated Measures (2 group X 3 measures) analysis revealed significant "Group" X "Measurement" interaction ( $F(2,110)=17.73$ ,  $\eta^2=0.244$ ,  $p<0.01$ ), between the measurements (pre-test, post-test, retention test) and also revealed a significant "group" ( $F(1,55)=31.12$ ,  $\eta^2=.361$ ,  $p<0.01$ ) and "measurement" effect ( $F(2,110)=84.21$ ,  $\eta^2=0.605$ ,  $p<0.01$ ). Analyzing the interaction paired t-test analysis for the measurements were used. The results indicated that participants of the ISTG (Instructional self-talk group) improved performance from first ( $M=34.64$ ,  $SD=4.92$ ) to second measurement ( $M=45.07$ ,  $SD=2.26$ ,  $t(27)=-14.58$ ,  $p<0.01$ ), from first to the third measurement ( $M=44.04$ ,  $SD=2.54$ ,  $t(27)=-10.61$ ,  $p<0.01$ ) and from first to third measurement ( $t(27)=-2.4$ ,  $p<0.01$ ).

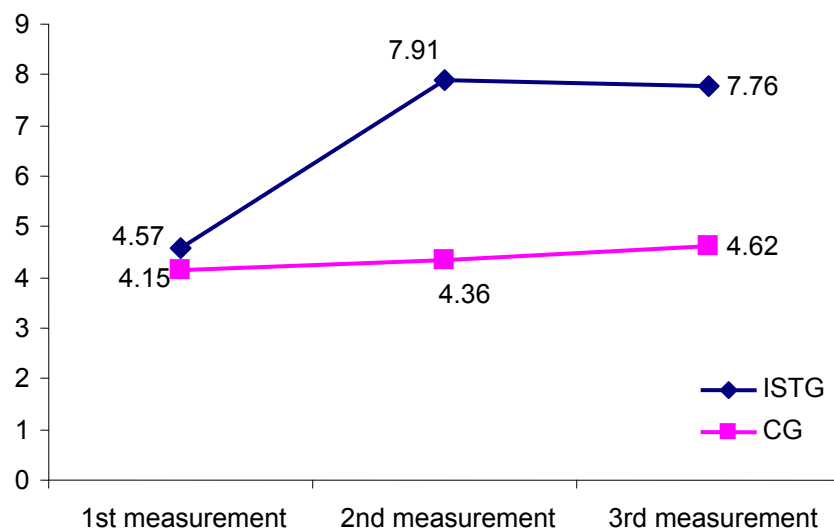
For the CG (control group) the participants improved performance from pre ( $M=33.21$ ,  $SD=3.59$ ,  $t(28)=-11.03$ ,  $p<0.01$ ) to post-test ( $M=38.10$ ,  $SD=5.28$ ) but there was a decrease in retention test ( $M=35.62$ ,  $SD=7.22$ ,  $t(28)=-1.87$ ,  $p>0.01$ ). Finally, the results indicated that participants of both groups improved service skill; however the ISTG (instructional self-talk) group was better than the CG (control group) in the post and retention test (Figure 1).

**Figure 1.** Performance of the group in service skill in three measurements ( $p<0.01$ ).

*Self-talk effect in self-efficacy improvement*

ANOVA Repeated Measures (2 group X 3 measures) analysis revealed significant interaction ( $F(2,110)=55.48$ ,  $\eta^2=0.502$ ,  $p<0.01$ ), between the factors “group” and “Measurement” (pretest, posttest, retention test) in self-efficacy scores. There was also significant “measurement” effect ( $F(2,110)= 82.97$ ,  $\eta^2=0.601$ ,  $p<0.01$ ), and also “group” effect ( $F(1,55)= 52$ ,  $\eta^2=0.486$ ,  $p<0.01$ ). Analyzing the interaction paired t-test analysis for self efficacy measurements were used. The results indicated that participants of the ISTG (Instructional self-talk group) improved self-efficacy performance score from first (pre-test) ( $M=4.57$ ,  $SD=1.59$ ) to second measurement (post-test) ( $M=7.91$ ,  $SD=1.46$ ,  $t(27) =-11,03$ ,  $p<0.01$ ) and from first to the third measurement ( $M=7.76$ ,  $SD=1.32$ ,  $t(27) =-10,05$ ,  $p<0.01$ ).

For the participants of the CG (control group) results indicated that they had not improve self-efficacy performance score from the first (pre-test) ( $M=4.15$ ,  $SD=1.32$ ) to the second measurement ( $M=4.36$ ,  $SD=1.401$ ,  $t(28) =-1,10$ ,  $p>0.01$ ). The final mean score also didn't have any significant difference from the retention test ( $M=4.62$ ,  $SD=1.43$   $t(28) =-2,29$ ,  $p<0.01$ ), (Figure 2). The results indicated that participants of the ISTG (instructional self-talk group) improved self efficacy after the intervention.



**Figure 2.** Group scores on self-efficacy improvement in three measurements ( $p<0.01$ ).

## DISCUSSION

The aim of the present study was to identify the effect of instructional self-talk in learning the service skill and self-efficacy improvement of novice female volleyball players. The results of this study supported the predictions. According to the first hypothesis, experimental group improved performance in service skill in relation to the control group, thus providing support for the effectiveness of instructional self-talk as a performance enhancing strategy. Furthermore, in line with the second hypothesis, the instructional self-talk group showed a higher improvement than the control group in self-efficacy scores, suggesting that instructional self-talk should be more appropriate for self-efficacy improvement.

Results indicated that participants of both groups improved the service skill, but the participants of the ISTG (self-talk group) were much better than participants of the CG (control group). When coaches deal with novice athletes it is recommended to teach them to use the instructional self-talk strategy, so as to perform quickly and correctly the skills. In the present study, participants of the experimental group claimed that self-talk possible helped them to focus their attention to the key points of the skill so as to manage to improve it.

According to the literature, self-talk is defined as internal dialogue that influences actions and emotional states. In several studies reviewed in the introduction section, positive self-talk was found to be associated with enhanced performance and optimal emotional states. In Perkos, Theodorakis and Chroni (2002) research revealed that self-talk helped basketball athletes to improve dribble and pass. Same results were found in Johnson, Hrycaiko, Johnson and Halas (2004), Hatzigeorgiadis, Theodorakis, and Zourbanos (2004), and Theodorakis, Weinberg, Natsis, Douma, and Kazakas (2000) studies, in which an intervention using self talk was used.

«Self-efficacy expresses the individual expectation of someone, who can manage perform successfully a particular activity. Self-efficacy is the self-confidence which someone feels in particular situations» (Theodorakis, Goudas, & Papaioannou, 2000, p. 87). As far as the improvement of self-efficacy concerns, the results showed that the participants of instructional self-talk group had better scores in self-efficacy compared to the control group. Instructional self-talk probably helps athletes to increase their self-efficacy. Johnson et al. (2004), Hatzigeorgiadis et al., (2007) and Morris and Andersen (2007) studies reached the same results.

More studies should be conducted, concerning self-talk either instructional or motivational in various sports and different ages of the athletes. It is suggested that instructional self talk could combine with other psychological skills (ex. goal setting) for better results in athletes' performance. Also it is possible to examine the way the self-talk works in the athletes, the moment that he/she performs, probably by using interviews or a questionnaire right after the execution.

## CONCLUSIONS

What interests coaches and others who are involved in the sport training procedure, is to improve the coaching methods and the content of training, so as to produce expert athletes for the sport. Therefore, it is important for every coach to decide which practice should be used not only for improving the physical fitness, the technique, and the tactic, but also the developing of psychological skills. These psychological skills should support the procedure of learning and improvement of physical, technical and tactical skills.

Self-talk has been shown to be helpful for the compliment of novice and/or adult athletes by facilitating the improvement of their performance and also, for using it in sport and in everyday life activities. Athletes develop their self-confidence in general using self-talk, which leads to the improvement of the quality of life.

Finally, interventions including self-talk practice were more effective than those not including self-talk practice. The results of this study support the effectiveness of self-talk in team sports and encourage the use of self-talk as a strategy to facilitate learning, to enhance athletes' performance and to improve their self-efficacy, which is very important factor for novice athletes. Therefore, during the coaching procedure and if the goal is the improvement of technique, he/she should use the instructional self-talk.



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