Positive and negative motivational self-talk affect learning of soccer kick in novice players, mediated by anxiety

Lotfi, Gholamreza
Department of Motor Behavior, Faculty of Physical Education and Sport Sciences. Shahid Rajaee Teacher Training University, Tehran, Iran

Rabavi, Aziz
Shahid Rajaee Teacher Training University, Tehran, Iran.

Jafarzadeh, Maryam
Tehran University, Tehran, Iran

Abstract

The purpose of this study was to determine the impact of motivational self-talk on learning of soccer shot in novice players were mediated by anxiety. 30 non athlete students with age mean of 14.9±0.78 years were selected and randomly divided into three groups as positive self-talk, negative self-talk and control. Amount of subject's anxiety was evaluated by Spielberger state-trait anxiety inventory (STAI) and soccer kick accuracy of subjects were measured by Moore-Christine shoot-skill test. Training protocol contain of 3 sessions with 40 trials in each session. Upon completion of training all subjects completed posttest of anxiety and accuracy soccer kick. Retention and transfer tests of accuracy soccer kick were executed after 72 hours. To analyze the data, in addition to descriptive statistics, one-way Analysis of Variance (ANOVA) and repeated measures ANOVA was employed (P≤0.05). The findings suggest that anxiety in positive motivational self-talk group was significantly decreased in posttest. Also soccer kick performance of positive motivational self-talk group was significantly better than its pretest and performance of negative group's posttest. There were no differences between groups in retention and transfer tests.

Key words: positive motivational self-talk, negative motivational self-talk, soccer kick, anxiety, novice players.
Introduction
Looking at sports competitions, we find that the role of psychological factors in athletic capabilities is very significant. Therefore, the communities which try to improve the mental abilities of athletes along with their physical fitness are significantly successful. Anxiety is an important factor in creating psychological stress. The anxiety is a negative emotional state which is associated with anger, sadness, and confusion feelings and physical arousal (Abdoli, 2005). The anxiety in sport reflects the feelings of athletes in the conditions in which a wrong movement may lead to their performance failure (Martens, 1987).

Self-talk is one of the mental skills that most athletes use during training and competition for different purposes such as giving incentives to themselves, giving instruction to themselves, controlling mental functions such as anxiety, and justifying the good and bad practices (Conroy & Metzler, 2004). Hectore (1993) defines self-talk as: the individuals, with an internal dialog, explain their feelings, determine and change their evaluations and opinions, and give instruction and reward to themselves. In this case, the speaking plays a key role in the development of thought process. Also, the behavior may be corrected by specific forms of inner and outer speech (Hardy, Jones, & Gould, 1996).

The coaches and sports psychologists emphasize on self-talk as a tool for skill learning and performance improvement. The positive motivational self-talk particularly focuses on increased positive energy, effort, and mood; for example: I can lift it. The negative self-talk is counter-performance and creates anxiety; for example: how can you play such a bad game? This creates anxiety and will increase lack of self-confidence. The researchers have found two major functions of self-talk. The cognitive function which is dependent on skills learning and performance, and motivational function which relies on self-confidence, regulation of arousal, mental preparation, dealing with difficult situations, and motivating (Weinberg, 2007). Most of the studies on self-talk show that positive self-talk leads to better performance compared to negative self-talk and also reduce the annoying and negative thoughts. However, little research has been conducted to examine various aspects of self-talk- such as its educational and motivational aspects- and the effects of these aspects on learning and performance. Also, there is little research on the effect of self-talk on anxiety.

Hatzigeorgiadis and Biddle (2006) concluded that the cognitive anxiety is more correlated with negative self-talk than competition. In another study on the impact of motivational self-talk on self-confidence and anxiety, the researchers concluded that changes in self-confidence are associated with changes in performance. They suggested that the increased self-confidence, as a viable function, may explain the self-talk facilitator aspects (Hatzigeorgiadis, Zourbanus, Mpoumpaki, & Theodorakis, 2009). In a study on the impact of motivational self-talk on performing simple and complex motor skills in basketball, Rezaee, Farrokhii and Bagherzadeh (2012) concluded that the motivational self-talk impacts improving the simple skills performance; it affects more simple skills. In a study, Akbari, Shaghami, and Behroozian (2011) concluded that reassuring, considering positive aspects, therapy and cognitive behavior, and emotional release techniques reduce test anxiety in students.

There are several theories which explain and interpret the effectiveness of self-talk on performance and learning of sports skills. The Nideffer’s cognition model (1976) states that self-talk not only allows appropriate attention to special incentives, but also maintains the focus on
special sports assignments and thus improve the performance of athletes. According to Vygotsky’s cognitive development theory (1986), on one hand, the self-talk leads to better understanding of individuals’ behavioral characteristics and thereby; on the other hand, their behavior is regulated. This means that if an individual experiences anxiety, the self-talk will deal with it and will lead to improved performance. On the other hand, the Bandura’s self-efficacy theory (1997) states the self-efficacy which impacts the thoughts and emotional experiences of individuals through recalling of words such as (I can do it) improves the performance (Rezaee et al., 2012).

According to research results, the anxiety enforces different effects and change in anxiety is in tandem with changes in arousal. The moderate level of arousal is more appropriate for performance, because it gives energy to body in a useful manner. The high level of arousal is supposed to be damaging, because excessive energy is produced and thus the performance may be out of control. There are several ways to control anxiety such as Paum et al’s stress management programs. These programs have obviously used the visualization, relaxation, and self-talk. The positive self-talk is supposed to play an important role in maintaining the attitudes. The cognitive restructuring plays an important role in helping athletes positively interpret the anxiety symptoms, especially after a mistake or when they are under pressure. The cognitive restructuring is primarily related to cognitive assessment. The self-talk may affect through cognitive assessment, cognitive anxiety, or cognitive arousal. It seems that professional players should practice the cognitive restructuring skills. Based on these skills, when a condition is interpreted negatively, they may use it automatically. This reconstruction is the use of effective verbal statements, mental imagery, or both of them (Vaez Mousavi & Mosayyebi, 2011).

Considering the significant improvement of technical and tactical techniques of athletes and multiple failures of athletes in sports competitions that are sometimes caused by anxiety, it seems necessary to conduct a research on the impact of self-talk type on kick performance of players, with emphasis on mediating role of anxiety. This may provide a suitable context for short-term and long-term planning for mental relaxation of athletes which may be effective in reducing the anxiety dramatically. According to the above, the question is: whether the self-talk impacts on anxiety and kick performance of soccer players? To answer this question, the impact of motivational self-talk on novice soccer players’ kick performance with mediator variable of anxiety was studied.

Methodology
This was a quasi-experimental and field study. It conducted via pre- and post-tests design with control group. The study population consisted of non-athlete male students aged 13 to 16 years. However, 30 participants were selected voluntarily as a sample. They were randomly divided into three groups of ten participants: positive motivational self-talk group, negative motivational self-talk group, and control group. The participants had no history of exercise or participation in competitions; in this study, they were identified as novices.

In this study, the participants’ anxiety was measured using Spielberger Trait Anxiety Inventory (STAI). This questionnaire includes separate scales to measure overt and covert anxiety. The overt anxiety scale includes twenty sentences which evaluate the individuals feeling in the moment and in the response time. Also, the covert anxiety scale includes twenty sentences which
evaluate the individuals’ normal feelings. The reliability of this questionnaire was calculated in various studies as 87%.

The kick performance of participants was measured by Christine-Moore’s kick skill test. To run this test, the goal is divided into two parts using two ropes. From a distance of 16 meters from the goal, a line is drawn which is the shoot point. The participant was placed behind the starting line to shoot the ball into the goal. The participants would shoot 4 balls for preparation. Then, they would have the opportunity to shoot in four stages and each stage with 4 kicks (16 shots). The score 10 was awarded to kicks which enter the ball to the goal. The score 4 was awarded to kicks which enter the ball to the goal from the below of rope or when the ball strikes to the rope around the goal. The average score of 16 kicks in each of the measurement stages was considered as the participants’ rating. The post-test consisted of 16 kicks and was conducted 10 minutes after the final training session.

In this study, the training protocol was conducted for 9 sessions on alternate days; each session was about 45 minutes. In each session, the participants did warm-up for 10 minutes and practiced the kick from a distance of 16 meters in 10 blocks each with 4 kicks. The retention test was conducted 72 hours after the last training session and included 16 kicks from a distance of 16 meters. The transfer test was conducted after ten minutes of rest and after the retention test by changing the distance to 18 meters and included 16 kicks.

In the positive motivational self-talk, the participants stated one of the phrases (I can do it), (I have the talent to do it), and (my score will be more than others) before the kicks such that their voice would be heard by the examiner; then, they performed the skill. In the negative motivational self-talk, also, the participants stated one of the phrases (I cannot do it), (I have not the talent to do it), and (my score will not be more than others) before the kicks. The control group without any specific self-talk instruction trained the skill for 9 sessions and the examiner only asked them to show their best performance. After completing the training, all groups conducted the anxiety post-test (Spielberger Anxiety Inventory), precision of kick in soccer test (Christine-Moore kick skills test), and retention and transfer tests for the Soccer kick precision.

In this study, in addition to descriptive statistics, the analysis of variance with repeated measures was used for inferential analysis of obtained data in acquisition phase and its comparison with the pre-test phase; also, the ANOVA and Tukey test were conducted in SPSS version 21 to compare the means of groups in retention and transfer tests.

Findings
The table 1 shows the mean and standard deviation of scores at various stages of testing the soccer kick accuracy and measuring the anxiety of participants in three research groups.

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>ANXIETY</th>
<th>SOCCER KICK ACCURACY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pretest</td>
<td>posttest</td>
</tr>
<tr>
<td>Group</td>
<td>Mean±SD</td>
<td>Mean±SD</td>
</tr>
<tr>
<td>Positive</td>
<td>101.6±8.38</td>
<td>59±8.22</td>
</tr>
<tr>
<td>Negative</td>
<td>94.8±10.08</td>
<td>72.3±14.67</td>
</tr>
<tr>
<td>Control</td>
<td>94.6±5.33</td>
<td>81.7±9.52</td>
</tr>
</tbody>
</table>
Prior to test the research hypotheses, the normality of data distribution was evaluated through Shapiro-Wilk test. The test results showed that the data distribution is normal. The homogeneity of variances was evaluated and confirmed using Leven test. To ensure there is no significant difference between the groups, the ANOVA was used to compare the groups’ pre-test scores at the start of study. The results of analysis showed that there is no significant differences among the three studied groups in Soccer kick accuracy pre-test ($F(2, 27) = 1.75$ and $P = .192$) and anxiety level test ($F(2, 27) = 2.28$ and $P = .12$).

The mixed ANOVA of $3$ (group) × $2$ (measurement) with repeated measurement on the second factor was used to analyze the soccer kick accuracy in acquisition phase. The Table 2 shows that the main effect is not significant. However, the main effect of measurement steps and the interaction effect of group and measurement steps were significant. The significance consideration of group interaction at measurement steps showed that the positive motivational self-talk group had significantly better performance in post-test compared to pre-test. Also, the positive motivational self-talk group had significantly better performance in post-test compared with negative motivational self-talk group.

Table 2- Results of mixed ANOVA for soccer kick accuracy in acquisition phase

<table>
<thead>
<tr>
<th>Resources</th>
<th>MS</th>
<th>df</th>
<th>SS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement</td>
<td>1.14</td>
<td>1</td>
<td>1.14</td>
<td>4.19*</td>
<td>.05</td>
</tr>
<tr>
<td>Group</td>
<td>2.58</td>
<td>2</td>
<td>.66</td>
<td>1.93</td>
<td>.16</td>
</tr>
<tr>
<td>Measurement × group</td>
<td>2.61</td>
<td>27</td>
<td>1.3</td>
<td>4.8</td>
<td>.016*</td>
</tr>
</tbody>
</table>

The effect is significant at level $P \leq .05$

In retention phase, using ANOVA, the accuracy of soccer kick in three groups was compared. There was no significant difference ($F(2, 27) = 1.93$ and $P = .163$). Also in transfer phase, using ANOVA, the accuracy of soccer kick in three groups was compared. There was no significant difference ($F(2, 27) = 1.57$ and $P = .226$).

The mixed ANOVA of $3$ (group) × $2$ (measurement) with repeated measurement on the second factor was used to determine the anxiety level of participants in three group in pre-test and post-test. The results of this analysis are summarized in Table 3. It shows that although the main effect is not significant, the main effect of measurement steps and the interaction effect of group and measurement steps are significant. The paired comparisons of mean scores in pre-test and post-test of three groups showed that only in positive motivational self-talk group, the anxiety in post-test was significantly lower than pre-test of the same group. The difference in anxiety scores in post-test of the three groups was not significant ($F(2, 27) = 3.02$ and $P = .06$).

Table 3- Results of mixed ANOVA for anxiety in acquisition phase

<table>
<thead>
<tr>
<th>Resources</th>
<th>MS</th>
<th>df</th>
<th>SS</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement</td>
<td>9984.6</td>
<td>1</td>
<td>9984.6</td>
<td>58.26*</td>
<td>.001</td>
</tr>
<tr>
<td>Group</td>
<td>579.1</td>
<td>2</td>
<td>289.5</td>
<td>.95</td>
<td>.399</td>
</tr>
<tr>
<td>Measurement × group</td>
<td>2198.7</td>
<td>27</td>
<td>1099.3</td>
<td>6.41*</td>
<td>.005</td>
</tr>
</tbody>
</table>

The effect is significant at level $P \leq .05$
Discussion and conclusion

The results showed that positive motivational self-talk leads to significantly improved performance in soccer kick accuracy compared with other research groups. This is consistent with research results of Hatzigeorgiadis et al. in 2008. They showed that the performance of experimental group increased significantly and there were no significant change in control group. This indicated the positive impact of self-talk on performance. Also, the results of this study are consistent with research results of Hatzigeorgiadis et al. (2009). They showed that the performance of experimental group increased and there was no change in control group. The results of this study showed that the positive motivational self-talk is useful for performing the tasks and leads to improved performance. This is consistent with research findings of Donahue, Barbhart, Casassin, Carpin, and Korb (2000), Harvey, Van Raatle, and Brewer (2002), Theodorakis, Weinberg, Natsis, Douma, and Kazakas (2000), Landin and Hebert (1999), Mallet and Hanrahan (1997), Ming and Martin (1996), Rushal and Shewchuk (1989), Hatzigeorgiadis and Biddle (2006), Kolovelonis, Goudas and Dermitzaki (2011), Chroni, Perkos, and Theodorakis (2007), and Linner (2010). This finding confirmed the Bandura’s self-efficacy theory (1997). He believes that retelling the terms such as "I can do it" improves one's self-efficacy and one's performance level.

Another finding of this study was the significant decrease in anxiety in post-test of positive motivational self-talk group compared with pre-test. Also, the research of Hatzigeorgiadis et al. (2009) showed that positive self-talk against the negative self-talk may reduce anxiety and increase concentration and self-confidence; the negative self-talk increases the anxiety. The results of this study showed that anxiety decreased significantly in positive motivational self-talk group. This is consistent with the findings of Hatzigeorgiadis and Biddle (2006) and Hatzigeorgiadis et al. (2009). However, they were no significant change in negative motivational self-talk group and control group in terms of anxiety level. This is not consistent with the findings of Hatzigeorgiadis and Biddle (2006) and Hatzigeorgiadis et al. (2009). The better performance of positive self-talk group that was associated with a significant decrease in anxiety level confirmed the Vygotsky’s cognitive development theory (1986). He believes that self-talk regulates the individuals’ behavior, helps them to deal with their anxiety, and leads to their improved performance. Since each person may be motivated by specific self-talk statement (Liner, 2010), the negative self-talk phrases in these researches were different, and the level of expertise and skills may also impact on self-talk effect’s level (Kolovelonis et al., 2011), the different results of above mentioned researches are justified.

According to research and their findings, it is suggested that self-talk content may impact the performance and motor learning. However, it should be noted that the motivational self-talk, based on the nature of task and positive or negative nature of used words in self-talk, may also have different effects on performance and motor skills learning.
References

