

THE EFFECTS OF SELF-TALK ON FREE THROW PERFORMANCE AND THE LEVEL OF ANXIETY AMONG MALE NOVICE BASKETBALL PLAYERS

Mohd Saufi Bin Dali* and Vincent A. Parnabas

Faculty of Sports Science and Recreation, Universiti Teknologi MARA,
Shah Alam, Malaysia

*Email: saufidali18@gmail.com

(Received 1 October 2017; accepted 19 December 2017; published online 29 January 2018)

*To cite this article: Dali, M. S. & Parnabas, V. A. (2018). The effects of self-talk on free throw performance and the level of anxiety among male novice basketball players. Movement, Health & Exercise, 7(1), 73-87. <http://dx.doi.org/10.15282/mohe.v7i1.174>
Link to this article: <http://dx.doi.org/10.15282/mohe.v7i1.174>*

Abstract

The present study has been conducted to investigate the effects of self-talk on free throw performance and the level of anxiety among male novice basketball players. Forty-eight (48) male novice basketball players (22.27 ± 1.47 years) was selected. The participants were assigned into four matched groups of twelve (12) participants: instructional self-talk (IST), motivational self-talk (MST) and the combination of instructional and motivational self-talk (CIMST) and control. Throw accuracy and anxiety's level were measured on a 5-point scale and State-Trait Anxiety Inventory for Adults (STAI). Training protocol contains a pre-test and post-test to indicate the intervention effect on anxiety level and free throw performance. The participants compete against each other to get the highest score in post free throw performance. The data were analyzed by using mixed between-within subjects analysis of variance (ANOVA). The finding showed that state and trait anxiety level of post-intervention was significantly lower than pre-intervention in all groups ($p < .05$). The results of free throw performance showed the instructional self-talk intervention group was significantly improved from pre-intervention to post-intervention followed by the combination of instructional and motivational self-talk intervention group, motivational self-talk intervention group and control group ($p < .05$). However, there was no significant differences in anxiety level and free throw performance among all groups ($p > .05$). Therefore, it is recommended that self-talk can be used to enhance the free throw performance and reduce the anxiety's level for the novice athletes.

Keywords: Self-talk, anxiety, free throw performance, novice athletes

Introduction

In sports competitions, the psychological factors play an important role in athlete's capability. Therefore, the coaches and sports psychologist must pay attention to psychological factors that are able to affect the performance of athletes. Anxiety is the one of the important factors that may create psychological stress (Gholamreza, Farshid, & Aziz, 2016b). Anxiety is able to give immediate effect on the performance's level of an athlete. Anxiety is a negative emotional state in which a person experiences a combination of nervousness, worry, and fear (Ampofo-Boateng, 2009). Anxiety is characterized as the barrier of performance, lack of concentration, and distraction during competition (Khodayari, Saiari, & Deghani, 2011). According to Mehrpouyan, Noghondar, and Taheri (2013), one of the issues in sports psychology was the rising anxiety level among the athletes during the competition and also how the mood and dynamic skills affect the performance of athletes. The level of anxiety can also increase based on the level of competition that is competitive or non-competitive (Hoseini, Aslankhani, Abdoli, & Mohammadi, 2011).

Mental skills are essential in all types of sport. Mental skills help to create and enhance the individual and team spirit, that lead to better team awareness (Shilpi, Singh, & Kumar, 2015). Cognitive techniques of the mental skills such as goal-setting, imagery, relaxation training, arousal regulation, and self-talk have been found to be effective for individual athletes in certain situations such as anxiety and stress (Theodorakis, Chroni, Lapidis, Bebetos, & Douma, 2001). In order to overcome the rising level of anxiety, self-talk is one of the mental skills that most athletes use during training and competition (Gholamreza, Aziz, & Jafarzadeh, 2016a). A self-talk refers to verbalization or statements addressed to the self (Amar & Chéour, 2014). Self-talk is very important in all types of sports. Moreover, self-talk is seen as one of the most common cognitive strategies employed by athletes (Boroujeni & Ghaheri, 2011). There are four different types of self-talk; positive instructional self-talk, and positive motivational self-talk, negative self-talk and neutral self-talk. Motivational self-talk defined as a statement made to facilitate performance by increasing self-confidence and energy expenditure, expanding the effort, and evoking a positive mood while instructional self-talk assists performance by initiating desired movements through a focus of attention on tactical and technical aspects of motor skill (Boroujeni & Ghaheri, 2011). Negative self-talk is the thought of having doubt in oneself, which created a debilitating feeling when attempting to accomplish a task, whereas neutral self-talk is somewhat uncommon among athletes in a team or individual sports since it is crucial for athletes to keep their mind on relevant cues during the game (Bobic, 2013). Self-talk is divided into two categories: overt self-talk and covert self-talk. The overt self-talk is referring to the word that can be heard by the other person, which means that the self-talk was performed loudly while covert self-talk is an interpersonal communication that occurs in the mind in the form of slighter murmur that cannot be heard by others (Bahari, Shojaei, & Mokhtari, 2012). According to Bahari et al. (2012), there was a similar effect on the force production task performance by using either overt or covert self-talk.

Several theories have tried to explain and interpret the impact of self-talk intervention on anxiety and sports performance. The Attentional Control Theory (Focus of Attention) developed by Eysenck, Derakshan, Santos, and Calvo (2007), assumes that the effects of anxiety on attentional processes are of fundamental importance in understanding how anxiety influences performance. The self-talk causes a shift in the player's attention. The attentional focus are divided into two types, which are external focus and internal focus; external focus is the effects of movement on the environment while the internal focus effects on the body (Parvizi, Daneshfar, & Shojaei, 2012). It can be assumed that instructional self-talk was a combination of external and internal focus. The Processing Efficiency Theory (PET) was produced by Eysenck and Calvo (1992) explained that anxiety reduces the processing and storage capacity of working memory (Williams, Vickers, & Rodrigues, 2001). PET predicts that anxiety (worry) reduces the progressing and storage capacity of working memory, reducing the resources available for a given task (Wilson, Smith, & Holmes, 2007). The Attentional Control Theory (ACT) considered as a major extension of PET stated that worry affects the task performance (Wong, Mahar, Titchener, & Freeman, 2013). According to (Englert & Bertrams, 2012) on the study about anxiety, ego depletion and sports performance of dart and basketball free throw task explained the combination of ACT and PET become a successful approach to overcome the performance impairment under anxiety. The Catastrophe Theory was developed by Thom and Zeeman (1974) shows the relationship between state (cognitive) anxiety, physiological arousal, and performance. Based on this theory, when the state (cognitive) anxiety increases, the physiological arousal also increases, which resulted in a catastrophic drop in performance.

In a basketball game, a free throw is one of the key skills that all basketball players deal against the feelings of anxiety and these feelings affect their close skills performance (Oudejans, van de Langenberg, & Hutter, 2002; Zahedi, Shojaei, & Sadeghi, 2011). The previous study by Parvizi et al. (2012) shows that motivational self-talk has greater influences in decreasing the level of anxiety compared to instructional self-talk. According to Boroujeni and Shahbazi (2011), there is a significant increase in free throw accuracy in the instructional self-talk group compared to control and motivational self-talk group. It is still unclear on which type of self-talk keywords are superior in the effective learning in the basketball's free throw performance (Sabounchi & Sanatkaran, 2015).

Trained basketball players tend to be excellent free throw shooters during practice, since free throw basketball is a closed skill (Bobic, 2013). Basketball free throw task is chosen as selective attention is an important component necessary for successful performance. This is related to the previous study conducted by Englert and Bertrams (2012) showed the selective attention was highly dependent on the momentary availability of self-control strength of the self-control strength under pressure situation. As mentioned by Wulf (2007), there are a number of studies that examined the influences of internal versus external focus instructions. There are balancing tasks such as hitting a golf ball, a free throw in basketball, throwing a dart, American football placekicking, jumping performance, basketball spike, and a penalty kick in soccer. According to Cutton and Heaton (2013), the attentional focus is to the idea that players focus their attention on limited information sources and required them to perform the specific task. The previous

research examined the impact of self-talk on sports performance has focused on comparing the effects of positive and negative self-talk as well as comparing the effects of instructional and motivational self-talk (Goudas, Hatzidimitriou, & Kikidi, 2006). The use of self-instructional strategies have also succeeded during the last two decades in the field of sports psychology, and these strategies have been described as self-talk interventions and involved with self-talk cues aimed at facilitating learning and enhancing performance through the stimulation of appropriate response (Hatzigeorgiadis, Zourbanos, Galanis, & Theodorakis, 2011). Therefore, these studies have been conducted to get a better understanding of the effect of self-talk intervention toward anxiety's level and free throw performance.

Methodology

Participant

The experimental design and field testing of the present study involved forty-eight (n=48) novice healthy students, aged between 20 to 26 years (M = 22.27, SD = 1.47). The number of participants is based on the calculation of G-Power software version 3.0.10 (effect size 0.25 and power 0.80). The forty-eight (n=48) subjects were required to achieve 80% statistical power and an alpha level of 0.05. The inclusion criteria for all subject were healthy and had no history of the state, national or international basketball competition. The exclusion criteria were the subjects have a previous injury on biceps, triceps, shoulders, and forearm muscles.

Procedures

In this study, the participant's anxiety was measured by using State-Trait Anxiety Inventory for Adults (STAI) that is originally developed by Spielberger (2010). This questionnaire was separated into two scales to measure overt and covert anxiety. The overt anxiety scale includes twenty sentences which evaluate the individuals feeling at the moment, and the covert anxiety scale includes twenty sentences which evaluate the individual's general feelings. The reliability of questionnaire in this study was calculated to be 0.89.

The task was basketball free throw by using a standard ball (No. 6). The accuracy of the free throws was scored within a range of 1-5 points; 5 points were awarded if the ball went through the hoop, 3 points for the ball touching the hoop, 2 points for the ball touching the board and the hoop, 1 point for the ball touching the board and a missed shot was given a score of 0 (Zachry, Wulf, Mercer, & Bezodis, 2005; Zahedi et al., 2011). The addition of time during the free throw task was categorized as a manipulation of pressure. This study has been supported by Orfus (2008) who test anxiety scale using a limited time pressure to complete the task.

Testing Protocol

This research was conducted in a competition situation in order to create emotional anxiety state of the participants. At the pre-testing session, all the participants completed the demographic data on the score sheet of basketball scoring and informed consent. After that, the participants completed the STAI self-evaluation for the pre-anxiety level. The participants underwent 5 minutes warm up and had 10 free throws basketball in one minute as a pre-test. The participants have been assigned to four (4) matched group with twelve (12) participants in each group. The four (12) matched groups were instructional self-talk, motivational self-talk, a combination of instructional and motivational self-talk group and control group. The participants have been assigned to the different group based on their pre-test of free throw basketball scores. The fishbowl technique has been used in order to differentiate into the different group. The Fishbowl Technique in this study was a random sampling technique in which all the participants with different score was placed in a box and then randomly drawn from the container one at a time. The process was continued until all the participants assigned to the different group.

The participants were practicing the free throw using a cue that has been given. The information about self-talk was provided for the experimental groups. The instructional self-talk was asked to repeat the words "wrist" and "center of ring", the motivational group was asked to repeat the word "I can", the combination of instructional and motivational self-talk was asked to repeat the word "wrist, center of ring" and "I can do it". The control subjects did similar shooting task without self-talk. The control group without any specific self-talk has been asked to show their best performance. The participants that classified in the experimental group was performed verbally and loudly for overt self-talk and being heard by the researcher. Before starting the post-test of free throw basketball, the participants completed again the STAI self-evaluation scale for post-intervention of anxiety level. After that, the participants starting with 5 minutes warm-up and have 10 free throws in one minute as a post-test free throw performance.

Statistical Analysis

The methods of handling and presenting data were provided by using Statistical Package of Social Sciences (SPSS) program software version 22.0. The demographic data were analyzed using descriptive statistic to compute mean, standard deviation and the result of free throw shooting. The mixed between-within subjects analysis of variance (ANOVA) was conducted for inferential analysis of obtaining data in post-test phase and its comparison with the pre-test phase. The significant value was set at $p < .05$.

Flow of Mini-Basketball Free Throw Tournament

As for pre-test, all the participants answered the STAI self-evaluation questionnaire and performed 10 times free throw basketball. After calculating the pretest score, the participants were assigned into four groups. The participants have been divided into four groups which consist of instructional self-talk group, motivational self-talk group, a combination of instructional and motivational group and control group.

The post-test task began with answering the STAI self-evaluation questionnaire. Then, the participants performed 10 times free throw basketball for a post-test score. This competition has four categories of prizes which are; the highest score between pre and post-test for each group, the highest post-test score for each group, the highest score between pre and post-test among four groups and the highest post-test score among four groups. The purpose of the prize given in this study was to increase the anxiety level among the participants and to motivate the participants by using extrinsic motivation (award for the winner).

Results

Table 1 shows the mean of obtaining scores by participants in three intervention groups; instructional self-talk group (ISTG), motivational self-talk group (MSTG), combination of instructional and motivational group (CIMSTG) and also one control group (CG) at state anxiety's level, trait anxiety's level and free throw performance.

Table 1: Mean of obtained scores by three intervention groups and one control group

	State Anxiety's Level		Trait Anxiety's Level		Free Throw Performance	
	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
ISTG	44.67±11.50	41.17±9.86	44.33±7.88	42.92±8.86	26.25±6.17	30.17±6.49
MSTG	40.42±13.62	38.75±10.19	41.67±7.87	40.08±7.57	26.75±5.21	29.83±4.69
CIMSTG	39.08±11.60	35.25±8.06	43.42±6.92	39.33±9.46	26.17±5.73	29.33±5.96
CG	44.17±11.60	40.75±12.81	48.67±10.97	43.17±9.73	25.92±5.71	27.00±6.21

Prior to the test, the objective of this study, the normality of data distribution was evaluated through Shapiro-Wilk test. The results showed that the data distribution was normal.

Self-Talk on the Level of State Anxiety

The first variable analyzed was the effect of self-talk intervention on the level of state anxiety. Figure 1 shows the decrement in percentage between pre-test and post-test of state anxiety level.

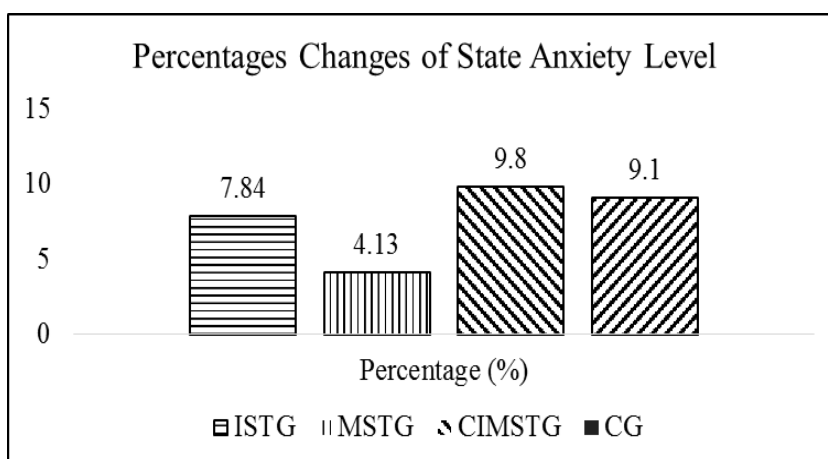


Figure 1: The decrement in percentage of state anxiety level

A mixed between-within subjects analysis of variance was conducted to assess the impacts of three different interventions (instructional self-talk, motivational self-talk, and the combination of instructional and motivational self-talk) on state anxiety level between pre-test and post-test. There was no significant interaction between all groups and two different time, ($F_{(3, 44)} = .08, p = .97$). For the within-group, ($F_{(1, 44)} = 3.11, p = .09$), that shows no significant differences between time still showing a reduction of state anxiety level between pre-and post-test. The main effect by comparing different types of intervention was not significant, ($F_{(3, 44)} = .08, p = .97$), suggesting that there are no differences between the three intervention strategies

Table 2: Mean of obtained scores by three intervention groups and one control group

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Time	231.26	1	231.26	3.11	.06	.07
Group	518.95	3	172.98	.96	.42	.06
Time x Group	17.12	3	5.71	.08	.97	.00

Self-Talk on the Level of Trait Anxiety

The second variable evaluated was the effect of self-talk intervention on the level of trait anxiety. The decrement in percentage between pre-test and post-test of trait anxiety level is shown in figure 2.

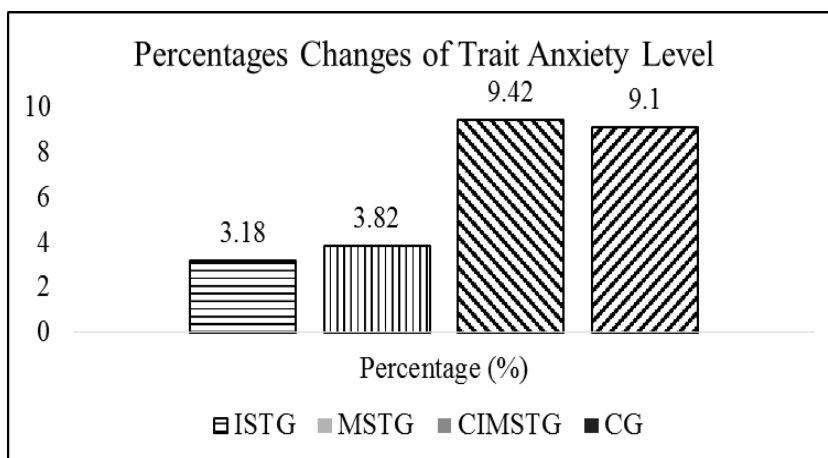


Figure 2: The decrement in percentage of trait anxiety level

A mixed between-within subjects analysis of variance was conducted to assess the impacts of three different interventions (instructional self-talk, motivational self-talk, and the combination of instructional and motivational self-talk) on trait anxiety level between pre-test and post-test. There was no significant interaction between all groups and two different time, ($F_{(3, 44)} = .57, p = .64$). For the within-group, ($F_{(1, 44)} = 5.68, p = .02$), that shows significant differences between time and also a reduction of trait anxiety level between pre-and post-test. The main effect by comparing different types of intervention was not significant, ($F_{(3, 44)} = 1.35, p = .34$), again suggesting that there are no differences between the three intervention strategies.

Table 3: Mean of obtained scores by three intervention groups and one control group

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Time	237.51	1	237.51	5.68	.02*	.11
Group	385.03	3	128.34	1.15	.34	.07
Time x Group	71.12	3	23.71	.57	.64	.04

* The effect is significant at level $P < .05$

Self-Talk on Free Throw Performance

The third variable analyzed was the effect of self-talk intervention on the free throw performance. The increment in percentage between pre-test and post-test on free throw performance is depicted in figure 3.

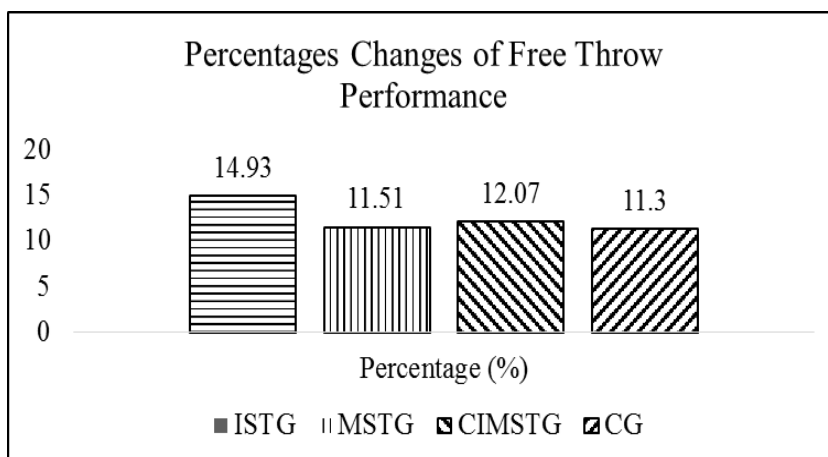


Figure 3: The increment in percentage of free throw performance

A mixed between-within subjects analysis of variance was conducted to assess the impacts of three different interventions (instructional self-talk, motivational self-talk, and the combination of instructional and motivational self-talk) on free throw performance among athletes between pre-test and post-test. There was no significant interaction between all groups and two different time, ($F_{(3, 44)} = .60, p = .62$). For the within-group ($F_{(1, 44)} = 12.93, p = .00$) that shows significant differences between time still showing an increase of free throw performance between pre-and post-test. The main effect by comparing different types of intervention was found to be insignificant, ($F_{(3, 44)} = .33, p = .81$).

Table 4: Mean of obtained scores by three intervention groups and one control group

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Time	189.84	1	189.84	12.93	.00*	.23
Group	51.62	3	17.21	.33	.81	.02
Time x Group	26.45	3	8.82	.60	.62	.04

* The effect is significant at level $P < .05$

Discussion

Self-Talk on the Level of State Anxiety

The first variable that has been studied was the effect of instructional self-talk (IST), motivational self-talk (MST), and the combination of instructional and motivational self-talk (CIMST) on the level of state anxiety. Based on the results of the present study, the state anxiety level significantly decreased in all groups compared to pre-test. However, there were no significant differences between three intervention group and control group. The result of the present study shows a combination of instructional and motivational self-talk strategy, turns out to be most effective in reducing the state anxiety level. This is

consistent with the study conducted by Parvizi et al. (2012). They showed a post-intervention state anxiety level is lower than pre-intervention state anxiety level and no significant difference between all groups of self-talk intervention. This can be assumed that one of the reasons affected free throw performance in basketball is the arising of a state (cognitive and somatic) anxiety of the participants. In the present study, the combination of instructional and motivational self-talk group influence more in decreasing the state anxiety's level compared to instructional self-talk and motivation self-talk. This finding is also consistent with the research findings by (Gholamreza et al., 2016a) which shows better performance of instructional self-talk and motivational self-talk is related to a significant decrease in anxiety level. This shows both instructional self-talk and motivational self-talk decreases the level of state anxiety.

The result of the effects of self-talk on state anxiety level is also related to the catastrophe theory. The catastrophe theory shows the relationship between cognitive anxiety (state anxiety), physiological arousal and performance. The previous study by Gholamreza et al. (2016b) is consistent with catastrophe theory that shows the rise in state anxiety (cognitive and somatic) which led to the decreases in term of performance while low state anxiety (cognitive and somatic) enhanced the athlete's performance. In addition, this result is consistent with a combination of Attentional Control Theory (ACT) and The Processing Efficiency Theory (PET) developed by Eysenck and Calvo (1992). This is similar result of a study carried out by (Englert & Bertrams, 2012) that shows attention control was a successful technique to overcome the problem of anxiety.

Self-Talk on the Level of Trait Anxiety

The second variable scrutinized is the effect of self-talk on the level of Trait Anxiety. The result shows that the trait anxiety level from the pre-intervention to post-intervention for all groups decreased significantly. For the between-group analysis, there are no significant differences between all groups. The combination of instructional and motivational self-talk group shows highest decreases in trait anxiety compared to the other group.

This result is in agreement with the study conducted by Zahedi et al. (2011). They found the level of trait anxiety in subjects with a high level of skill was higher than the subject with low skill level. For the present study, the participants were categorized as low skill level athlete since the participants were still novices and less of experience in basketball. The result of this study was also similar to the study conducted by Gholamreza et al. (2016a) which found that positive motivational self-talk has a significant decrease in trait anxiety in post-test after the intervention. This result also similar to the study conducted by Horikawa and Yagi (2012), that shows the goal performance of penalty shoot-out in football increases when the participants were in low trait anxiety level.

Self-Talk on Free Throw Performance

The third variable is the effect of self-talk on the free throw performance. The result of this present study shows that self-talk improved the free throw performance of the athletes. The results of the free throw performance in the present study showed the instructional

self-talk intervention group has significantly improved, followed by the other intervention groups and control group. The results between group comparisons did not indicate significant differences between all three intervention and control groups.

This is consistent with the research finding by Chang et al. (2014) and Gholamreza et al. (2016b) that showed the positive effect of instructional self-talk and motivational self-talk on soccer shot accuracy performance and softball accuracy task. The presents study also evaluated the period (under pressure) while conducting the task to increase the level of anxiety among participants. The result was similar with the study by Parvizi et al. (2012). They increased the level of anxiety with a larger number of spectators and found that instructional self-talk; external focus and internal focus increase the free throw performance of athletes. The study from Zahedi et al. (2011) on the effect of instructional self-talk; internal focus and external focus, reported that the performance of the subjects was better than the control group. The result of the present study is also consistent with the study by Boroujeni and Shahbazi (2011) which found that instructional self-talk increased the performance on the accuracy of shooting and passing, whereas motivational self-talk increased the performance on the speed of passing.

The results of presents study show instructional self-talk increases performance better than motivational self-talk. This result was contrasting with the study carried out by Chroni, Perkos, and Theodorakis (2007), Sabounchi and Sanatkaran (2015) and Dana, VaezMousavi, and Mokhtari (2012). Their studies found that motivational self-talk is more effective compared to instructional self-talk.

According to Weinberg and Gould (2014), instructional self-talk improves athlete performance by increasing focus, concentration and techniques, while motivational self-talk improved performance by boosting self-confidence and lowering the level of anxiety. The task which needs more power and less technique required motivational self-talk compared to instructional self-talk. This is supported by the study on the effect of self-talk on the shot put performance conducted by Goudas et al. (2006). That study found that motivational self-talk influenced the shot-put performance compared to instructional self-talk. This is because motivational self-talk facilitated the athletes to feel stronger and more confident as well as to concentrate better. These results of the present study are consistent with the attentional focus theory developed by Eysenck et al. (2007) which mentioned that internal focus (wrist) and external focus (center of the ring) increase the goal-directed attentional system in the body. Therefore, the movement of the body is focused on the specific task using instructional self-talk by enhancing the technique and skills of the athletes.

Conclusion

The objectives of this study are to investigate the effects of instructional self-talk (IST), motivational self-talk (MST) and the combination of instructional and motivational self-talk (CIMST) on basketball's free throw performance and anxiety level of male novice basketball players.

Based on the results of the present study, it can be concluded that the new method of self-talk intervention which was a combination of instructional and motivational self-talk is better on free throw performance for the male novice basketball athletes compared to instructional self-talk intervention, motivational self-talk intervention, and control group. Based on the result of the present and previous study, it can be assumed the tasks involving attentional focus and high skill of technique need to apply instructional self-talk while tasks which require power and less concentration need to use motivational self-talk. Moreover, the present study indicates that a combination of both instructional and motivational self-talk gives better performance in free throw performance task.

Based on the results of state and trait anxiety level, the instructional self-talk was a better self-talk technique in order to reduce the level of anxiety compared to motivational self-talk, a combination of instructional and motivational self-talk and without self-talk. It can also be assumed that novice athletes need to instruct their technique and focus on attention before doing the task.

Based on the results of the study, the coaches and sports psychologists can use self-talk techniques in order to increase athletes' performance, especially for novice athletes. This finding may help the team or individual sportsman to use self-talk as one of the mental skills training to overcome the problem of anxiety. The further research may consider the difference between novice athletes and elite athlete in term of self-talk intervention.

Acknowledgement

The authors would like to thank all those who volunteered to participate in this study. We would like to thank Faculty of Sports Science and Recreation UiTM Shah Alam, Selangor and UiTM Sports Centre for their support and cooperation in this study.

References

- Amar, B. & Chéour, F. (2014). Effects of Self-Talk and Mental Training Package on Self-Confidence and Positive and Negative Affects in Male Kickboxers. *IOSR Journal Of Humanities And Social Science, 19(5)*, 31-34.
- Ampofo-Boateng, K. (2009). *Understanding sport psychology*. Shah Alam, Selangor, Malaysia: University Publication Centre (UPENA).
- Bahari, S. M., Shojaei, M., & Mokhtari, P. (2012). The effect of overt and covert self-talk on the performance of force-production task. *European Journal of Experimental Biology, 2(4)*, 1200-1203.
- Bobic, A. (2013). *Relationship among the types and use of self-talk, free throw percentage, and anxiety of collegiate basketball players*. (Unpublished master's thesis), Humboldt State University, California, United States.

- Boroujeni, S. T. & Ghaheri, B. (2011). The effect of motivational self-talk on reaction time. *Procedia-Social and Behavioral Sciences*, 29, 606-610.
- Boroujeni, S. T. & Shahbazi, M. (2011). The effect of instructional and motivational self-talk on performance of basketball's motor skill. *Procedia-Social and Behavioral Sciences*, 15, 3113-3117.
- Chang, Y.-K., Ho, L.-A., Lu, F. J.-H., Ou, C.-C., Song, T.-F., & Gill, D. L. (2014). Self-talk and softball performance: The role of self-talk nature, motor task characteristics, and self-efficacy in novice softball players. *Psychology of Sport and exercise*, 15(1), 139-145.
- Chroni, S., Perkos, S., & Theodorakis, Y. (2007). Function and preferences of motivational and instructional self-talk for adolescent basketball players. *Athletic insight*, 9(1), 19-29.
- Cutton, D. M. & Hearon, C. M. (2013). Applied attention-related strategies for coaches. *Journal of Sport Psychology in Action*, 4(1), 5-13.
- Dana, A., VaezMousavi, M., & Mokhtari, P. (2012). Belief in Self Talk and Motor Performance in Basketball Shooting. *International Research Journal of Applied and Basic Sciences*, 3(3), 493-498.
- Englert, C. & Bertrams, A. (2012). Anxiety, ego depletion, and sports performance. *Journal of Sport and Exercise Psychology*, 34(5), 580-599.
- Eysenck, M. W. & Calvo, M. G. (1992). Anxiety and performance: The processing efficiency theory. *Cognition & Emotion*, 6(6), 409-434.
- Eysenck, M. W., Derakshan, N., Santos, R., & Calvo, M. G. (2007). Anxiety and cognitive performance: attentional control theory. *Emotion*, 7(2), 336-353.
- Gholamreza, L., Aziz, R., & Jafarzadeh, M. (2016a). Positive and negative motivational self-talk affect learning of soccer kick in novice players, mediated by anxiety. *International Journal of Humanities and Cultural Studies (IJHCS)*, 1(1), 1946-1953.
- Gholamreza, L., Farshid, T., & Aziz, R. (2016b). The Impact of Instructional and Motivational Self-Talk on Cognitive Anxiety, Somatic Anxiety and Learning of Soccershot Skill in Beginner Players. *International Journal of Advanced Biotechnology and Research*, 7(4), 543-549.
- Goudas, M., Hatzidimitriou, V., & Kikidi, M. (2006). The effects of self-talk on throwing and jumping events performance. *Hellenic Journal of Psychology*, 3, 105-116.

- Hatzigeorgiadis, A., Zourbanos, N., Galanis, E., & Theodorakis, Y. (2011). Self-talk and sports performance a meta-analysis. *Perspectives on Psychological Science*, 6(4), 348-356.
- Horikawa, M. & Yagi, A. (2012). The relationships among trait anxiety, state anxiety and the goal performance of penalty shoot-out by university soccer players. *PloS one*, 7(4), e35727.
- Hoseini, S. H., Aslankhani, M. A., Abdoli, B., & Mohammadi, F. (2011). The relationship between the number of crowds with anxiety and the function of the soccer premier league referees. *Procedia-Social and Behavioral Sciences*, 30, 2374-2378.
- Khodayari, B., Saiiari, A., & Dehghani, Y. (2011). Comparison relation between mental skills with sport anxiety in sprint and endurance runners. *Procedia-Social and Behavioral Sciences*, 30, 2280-2284.
- Mehrpouyan, P., Noghondar, R., & Taheri, H. (2013). The import of mental skills on the sport anxiety aspects of Iranian athlete students. *International Journal of Sport Studies*, 3(2), 230-235.
- Orfus, S. (2008). The Effect Test Anxiety and Time Pressure on Performance. *The Huron University College Journal of Learning and Motivation*, 46(1), 118-133.
- Oudejans, R. R., van de Langenberg, R. W., & Hutter, R. V. (2002). Aiming at a far target under different viewing conditions: Visual control in basketball jump shooting. *Human movement science*, 21(4), 457-480.
- Parvizi, N., Daneshfar, A., & Shojaei, M. (2012). Effect of attentional focus of self-talk on anxiety and learning under pressure. *European Journal of Experimental Biology*, 2(6), 2303-2309.
- Sabounchi, H. & Sanatkaran, A. (2015). The effects of motivational and instructional self-talk on male basketball players' performance. *Journal of Novel Applied Sciences*, 4(5), 590-595.
- Shilpi, J., Singh, P. W., & Kumar, P. (2015). Interactive effect of mental skills training and anxiety on Indian athlete's performance. *International Journal of Physical Education, Sports and Health*, 1(4), 60-63.
- Spielberger, C. D. (2010). *State-Trait anxiety inventory*: Wiley Online Library.
- Theodorakis, Y., Chroni, S., Laparidis, K., Bebetos, V., & Douma, I. (2001). Self-talk in a basketball-shooting task. *Perceptual and Motor Skills*, 92(1), 309-315.
- Thom, R. & Zeeman, E. (1974). Catastrophe theory: its present state and future perspectives. *Dynamical systems-warwick* (468), 366.

- Weinberg, R. & Gould, D. (2014). *Foundations of Sport and Exercise Psychology*. United States of America: Human Kinetics.
- Williams, A. M., Vickers, J., & Rodrigues, S. (2001). The effects of anxiety on visual search, movement kinematics, and performance in table tennis: A test of Eysenck and Calvo's processing efficiency theory. *Journal of Sport and Exercise Psychology*, 23(4), 438-455.
- Wilson, M., Smith, N. C., & Holmes, P. S. (2007). The role of effort in influencing the effect of anxiety on performance: Testing the conflicting predictions of processing efficiency theory and the conscious processing hypothesis. *British Journal of Psychology*, 98(3), 411-428.
- Wong, I., Mahar, D. P., Titchener, K., & Freeman, J. E. (2013). The impact of anxiety on processing efficiency: implications for the attentional control theory. *The Open Behavioral Science Journal*, 7(6), 7-15.
- Wulf, G. (2007). Attentional focus and motor learning: A review of 10 years of research. *E-journal Bewegung und Training*, 1(2-3), 1-11.
- Zachry, T., Wulf, G., Mercer, J., & Bezodis, N. (2005). Increased movement accuracy and reduced EMG activity as the result of adopting an external focus of attention. *Brain Research Bulletin*, 67(4), 304-309.
- Zahedi, H., Shojahei, M., & Sadeghi, H. (2011). Effect of Focus of Attention and Skill Level on Basketball Free-Throw Shot Under Psychological Pressure. *World Applied Sciences Journal*, 13(5), 1047-1052.