

Usage of Self-Talk in Competition by Athletes

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Abstract

Self-talk has frequently been studied in sport psychology to improve performance, increase mood, or improve confidence. Coaches and athletes focus on self-talk to perform better in competition. While a majority of the literature conducted were experimental studies on function of self-talk, only limited studies investigate self-talk dialogue in competition. This review will analyze the current literature on self-talk in competition to determine the important factors in future research. EBSCO Host database, including CINAHL Complete, Health Source: Nursing/Academic Edition, MEDLINE Complete, and SPORT Discus, were used to search for articles specific to self-talk in competition. The search was limited to articles published within 10 years and written in English. A total of seven articles focused on self-talk in competition: Four articles studied self-talk in competition with the effect on performance, and three articles studied elite athlete's self-talk dialogue in competition. The review is limited due to lack of articles available on self-talk in competition. To unfold how athletes utilize self-talk, this review will introduce a sport-specific model of self-talk by Van Raalte, Vincent, and Brewer (2016). Additionally, it will compare the model with elite self-talk dialogue to explore the usage of self-talk in competition. Furthermore, future research to be conducted on self-talk dialogue of elite athletes will be recommended.

Index terms— self-talk, competition, elite athletes.

1 I. Introduction

arl Lewis, a track and field gold medalist once said, "My thoughts before a big race are usually pretty simple. I tell myself: Get out of the blocks, run your race, stay relaxed. If you run your race, you'll win?.channel your energy. Focus" (University of North Texas, 2017). This is self-talk, which is also referred as inner dialogue, covert speech, self-instruction, or verbal cues (Van Raalte et al., 2016). Self-talk intervention has become one of the frequently studied methods in sport psychology and many experimental studies have been conducted ?? Several experimental studies focused on the function of self-talk: motivational, instructional, positive or negative. Hatzigeorgiadis et al. (2011) conducted a meta-analysis concluding positive, motivational and instructional self-talk has positive effect on performance. Furthermore, self-talk intervention was more effective for tasks involving relatively fine, compared with relatively gross, motor demands, for novel, compared with welllearned tasks. Finally, instructional self-talk was more effective for fine tasks than motivational self-talk. Hatzigeorgiadis et al. (2011) advised the usage of selftalk on task-performance, especially on novice skills.

Although these experimental studies will merit coaches and athletes to understand which self-talk could be intervened to improve skills, it lacks how it should be implemented in the competition. Hardy, Hall, and ??ardy (2005) found that athletes use self-talk more frequently in competition than practice. Also, a study concluded that out of 176 Sydney Olympic Summer Games participants, medalists used more self-talk than non-medalists in the game (Taylor, Gould, & Rolo, 2008). Athletes are striving to win and self-talk could be the key to the victory. Yet there is lack of studies investigating the effectiveness of self-talk in competition ??Hatzigeorgiadis et al., 2014). To understand the selftalk in competition, it is essential to know how the elite athletes utilize self-talk

during the competition. This literature review aims to explore how athletes utilize selftalk during competition. It is the intention of the author that these findings will lead to a path on how future research could potentially be conducted.

2 a) Problem Statement

The purpose of this review is to highlight how the self-talk is utilized in elite athlete's mind during competition.

3 II. Review of Literature a) Self-talk and Performance in Competition

Hatzigeorgiadis et al. (2014) conducted an experimental study to examine the relationship of selftalk and performance in competition. A total of 41 young swimmers participated in this study and it were divided into an experimental (n=21) and control group (n=20). The experimental group practiced assigned self-talk in training period (8 weeks), using a wide variety of instructional and motivational self-talk. For the last 2 weeks of training, the experimental group practiced self-

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Self-talk is defined in numerous sport psychology journals and should be multi-dimensional in nature, containing instructional or motivational function with verbalizations addressed to self and having interpretive elements association (Hardy, 2006). To deepen the understanding of self-talk, Hardy (2006) indicated six aspects of self-talk's nature: 1) valance: positive or negative; 2) overtness: overt or covert; 3) self-determination: self-generated or assigned; 4) determined self-talk. After the training, a competition was held to measure the self-talk utilized in the experimental group: 18 participants used motivational self-talk only, 1 participant used instructional self-talk only, and 2 participants used a combination of instructional and motivational self-talk. Overall, there was significant increase in performance improvement on experimental group compared to the control group in competition. Hatzigeorgiadis et al. (2014) has concluded that self-talk could be effective in the complex and unexpected competitive environment.

Perez-Encinas, Fernandez-Campos, Rodas, and Barrios (2016) conducted a research on influence in cognitive interferences and self-talk during competition in elite female field hockey player. A total of 32 participants were chosen from a national team, divided into low (n=6), normal (n=15) and high performance (n=11) groups. Performance worries, irrelevant thoughts and thoughts of escape were factors of cognitive interferences using instruction/motivational self-talk was identified and measured. This study confirmed correlation between interfering thought management and performance. The most relevant association was the coupling between high performance group with the near-absence of thoughts of escape and the lowest scores on irrelevant thoughts and performance worries. Additionally, there was tendency for the participants in high performance group to utilize instructional and motivational self-talk more than low or normal groups.

The effect of self-talk during psychological crisis in marathon was studied by Schuler and Langens (2007). A total of 110 participants were divided into experimental group (n=58) and control group (n=52). Assigned self-talk were distributed to experimental group for the usage during psychological crisis in marathon. The result showed self-talk was used the most during the distance of 30km-40km and psychological crisis were highest during 30km-40km. The frequency of usage of self-talk paralleled with the psychological crisis. This research confirmed self-talk acted as a moderator, minimizing the negative effects of psychological crisis on race performance. Neither the psychological crisis nor performance had direct influence of self-talk but this research highlighted selftalk could be used as self-regulatory tool when difficulties in goal striving occurs. competition. A fear of failure and self-talk during competition was studied with a total of 59 soccer players in the English premier league football academy. This study concluded players used more negative selftalk when losing the competition. These participants were amateur soccer players striving for professional contracts and losing a game meant losing a contract. The fear of failure triggered negative self-talk, bad play ensued, and more negative self-talk controlled the minds. This study indicated the importance of regulating negative self-talk, to stay positive to win the competition. To control the negative self-talk, it is essential to know self-talk dialogue in athlete's mind. The next section will review articles of elite athlete's self-talk dialogue in competition.

5 b) Elite Athlete's Self-talk Dialogue in Competition

A qualitative study was conducted on five elite cricket players during competition by utilizing video footage (Miles & Neil, 2013). This research revealed the varied use of self-talk throughout the cricket batting performances. Self-talk was used as continual narrative and part of pre-batting routines to determine shot selection and execution. Additionally, the findings indicated that self-talk was most prominently used as a strategy to counteract negative thoughts during times of declining performance. Self-talk was used motivationally to increase confidence and concentration, to decrease anxiety amongst the cricket players.

Cutton and Heaton (2014) studied self-talk dialogue of elite power lifter in training and competition. This self-talk dialogue was recorded approximately 6 months in weekly emails. The elite power lifter utilized an array of motivational, instructional, positive, and negative self-talk during training and competition. The functions of self-

talk were effort, focus, mental preparation, decrease anxiety, technique and confidence. The study summarized the athlete used self-talk more during the competition rather than training and used more as the season progressed. This study highlighted the usage of positive self-talk immediately followed negative self-talk which could have played an important role in helping the athlete to stay concentrated on current strategy, situation or technique, as well as avoiding the distractions that were hindering performance.

More recently goal-directed self-talk was introduced by Latinjak, Fonrt-Llado, Zourbanos, and Hatzigeorgiadis (2016). Goal-directed self-talk could be motivational and instructional which is completely selfdetermined and it is not previously planned self-talk but emerges during sport participation. The goal directed self-talk could be described as following: 1) control cognitive reactions (e.g., not everything can go the way you want), 2) control activated states (e.g., don't be afraid) 3) control deactivated states (e.g., don't give up) 4) create activated states (e.g., give 100 percent) 5) create deactivated states (e.g., calm down) 6) regulate cognition and behavior (e.g., concentrate) and 7) focus on positive predictions (e.g., you will win).

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To measure goal-directed self-talk Latinjak et al. (2016) examined an elite orienteer during competition. A total of six sessions was conducted with sport psychologists and orienteer discussing goal-directed self-talk. This study concluded goal-directed self-talk interventions enhance performance through the changes in the way an athlete thinks by empowering with the guidance of self-determined self-talk. Additionally, negative self-talk replaced positive self-talk, and goal-directed self-talk replaced negative self-talk.

These three articles explored how elite athletes utilize self-talk. All of the athletes introduced in these articles used positive self-talk to counteract negative self-talk. During competition, it is essential for athletes to keep a stable mind and concentrate in the present. Emotional control was one of the significant differences between Sydney Olympic Summer Game medalists and non-medalists in the research conducted by Taylor et al. (2008). What differentiates elite athletes from amateur athletes is the ability to one's minds. Elite athletes use positive or goal-directed self-talk to replace negative self-talk and this positive self-talk could be the key to win the competition. To further explore how elite athlete's dialogue work in their mind, this review will introduce the sport-specific model of self-talk by Van Raalte et al. (2016).

7 c) Sport-specific Model of Self-talk

Van Raalte et al. (2016) introduced sportspecific model of self-talk by utilizing Nobel Prize lecture of ??ahneman (2003). When contacting outside world, one will evaluate and articulate the situation in terms of language, 'self-talk.' Experiences, thoughts and beliefs are internalized and the sender sends a message which the sender is also the receiver. There are two discrete but interacting systems transform information from the outside world: System 1 and System 2. System 1 is fast, effortless and emotionally charged, described as intuition which comes to mind spontaneously. Example will be feeling of surprise or recognizing a person. System 2 is slower, effortful and consciously monitored which includes explicit and intentional ideas, logic, conscious calculation, attributions and interpretations. System 1 self-talk brings current experiences into awareness immediately, emotionally charged reaction to the mind. System 2 self-talk results from consideration and planning, and may lead to logical instructional, taskfocused and motivational self-talk. When a baseball player strikes a ball poorly and with immediate reaction the player might say 'I am the worst!' This will be System 1 self-talk expressing athlete's experiences, beliefs and bodily reaction to the outside world. This System 1 selftalk could activate System 2 self-talk as self-regulatory system and say 'swing more softly' or 'relax' to reduce frustration.

Additionally, Van Raalte et al. (2016) adopted self-talk model by Hardy, Oliver, and Tod (2008) and proposed that System 1 and 2 are affected by personal factors, contextual factors and behaviors. These three factors influence and compose System 1 and 2, which lead a self-talk and behavior of oneself.

The sport-specific model of self-talk indicates negative self-talk in sport often involves System 1. When the negative self-talk arises in System 1, System 2 activates to take control of the situation. Van Raalte et al. (2016) hypothesized a 'shift' of System 2 to System 1 could occur by utilizing self-determined self-talk or by practice. System 2, a slower and effortful self-talk, could shift to System 1, which is fast and spontaneous. For instance, a tennis player will have a bad shot and say 'I missed it. I think I am going to lose the game.' But selftalk shifted from System 2 to 1 could say spontaneously, 'It is only a game. I still have more to go. Don't mind one miss.' If an athlete was able to counteract negative selftalk automatically, their self-talk dialogue will stay positive and their mind will not be disturbed. The goal of self-talk intervention is to stay confident and concentrate on current strategy, situation or technique, as well as avoiding negative distractions.

In previous section, this review introduced three articles of elite athlete's self-talk dialogues, which highlight elite athletes usage of positive self-talk to counteract negative self-talk in competition. The negative and positive self-talk interaction must be spontaneous in competition. Therefore, it could be hypothesized that elite athlete's utilized automatic positive self-talk to counteract negative self-talk. Additionally, this dialogue could be a 'shift' from System 2 to System 1, occurred with self-determined self-talk and practice as Van Raalte et al. (2016) expressed. Future research should be conducted to reveal if the self-determined self-talk and practice could shift self-talk from System 2 to System 1. Self-talk is a dialogue consistent in one's mind, and the sender sends a message which the sender is also the receiver. It is affected by personal factors, contextual factors and behaviors

and the investigation on self-talk will not be as easy as it seems. However, if we explore the answer to the hypothesis of Van Raalte et al. (2016), it could shed a new light to self-talk intervention in competition, which will empower both elite and amateur athletes.

8 d) Self-talk Research Methods Reviewed

This review emphasized the importance of future research to be conducted on self-talk dialogue of elite athlete, a possibility of positive self-talk automation to counteract negative self-talk. In this section, this review wishes to highlight some of the limitation of current research on self-talk in competition.

All of the articles introduced on this review were conducted in retrospective report. From a different prospective, research by Arnold, Baltzell, and Hayden Volume XVIII Issue I Version I (2016) focused on concurrent self-talk utilizing wireless microphone and overt self-talk. Although the research was conducted in training and not in competition, it has indicated the limitation of retrospective reports on selftalk. The athletes must remember and report the thoughts after the occurrence and there might be discrepancy with actual dialogue and the report of selftalk. To implement concurrent method in competition has several obstacles, but it is an option to be considered.

In many of the studies, researchers review athlete's self-talk dialogue and categorize function and valence. A research by Van Raalte, Cornelius, Copeskey, and Brewer (2014) reported that discrepancies of self-talk categorization could exist between self-talk participants and researchers. The study was conducted by recorded overt self-talk while 30 participants threw darts. The participants and researchers both listened to the recording and categorized the self-talk. The self-talk was categorized into instructional, motivational, positive and negative. There was high accordance in instructional self-talk but motivational and positive self-talk was low in agreement between participants and researchers. This research concluded that for spontaneous self-talk, methods of categorization should be compared with other approaches such as spontaneous self-talk questionnaires and discussing the categorization with participants.

9 III. CONCLUSION

During the past decade, a number of applied and theoretical research has helped to expand the knowledge on self-talk. And it is known that self-talk intervention could empower athletes with guiding voices inside their own heads (Latinjak et al., 2016) Self-talk is a thought process inside athlete's mind with variety of factors affecting the outcome, complicating the methods of research on self-talk. The research method should be carefully conducted, especially on categorization, because of the chance of discrepancies between self-talk participants and researchers (Van Raalte, Cornelius, Copeskey, & Brewer, 2014).

The paucity of studies conducted on self-talk in competition make this literature review limited. Additionally, the sample sizes of the studies were low, especially on elite athletes self-talk dialogues (Cutton & Hearon, 2014; Miles & Neil, 2013; Latinjak, Fonrt-Llado, Zourbanos, & Hatzigeorgiadis, 2016). With limited studies conducted, it is too early to conclude that majority of elite athletes counteract negative self-talk with positive self-talk in competition. Further research will be essential to unveil the usage of self-talk in competition by elite athletes. However, this review intends to give a hint on how the future research could be conducted, to bring a whole new picture on how the self-talk intervention could empower both elite and amateur athletes.

10 IV. CLINICAL IMPLICATIONS

In self-talk intervention, helping athletes to be aware of their own self-talk is an important step (Cutton & Hearon, 2015). When practitioner and athlete review self-talk dialogue, it could be retrospective or concurrent, but dialogues from both training and competition should be included. Self-talk could be categorized into instructional, motivational, positive and negative but always discuss the categorization with athlete to avoid discrepancies (Van Raalte et al., 2014).

Self-talk intervention should not focus only on the contents of athletes' self-talk but practitioner should advise to match the desired outcome (Hardy et al., 2005). The goal of self-talk intervention is to stay concentrated on current strategy, situation or technique, as well as avoiding the distractions. Practitioner and athletes should review the self-talk dialogue, especially the negative self-talk and the control through positive self-talk (Perez-Encinas et al., 2016). Once the athlete and practitioner decide the points to be intervened, then the focus on replacing negative self-talk with positive self-talk should occur spontaneously. Let athletes use self-determined self-talk because freely determined selftalk could hold a key to the automation of self-talk to counteract negative self-talk (Van Raalte et al., 2016). Furthermore, to improve the effectiveness of self-talk, training should be considered because it will maximize the effect on performance, especially at competition (Hatzigeorgiadis et al., 2016). This review emphasizes the importance of future researches to investigate the usage of self-talk in competition by elite athletes. The future research should reveal the dialogue of self-talk by elite athletes to determine if positive self-talk counteract negative selftalk spontaneously (Van Raalte et al., 2016). Additionally, it should investigate if spontaneous self-talk could be achieved with self-determined self-talk or with practice. The conclusion of future research could lead a new perspective in self-talk intervention, a vital method for athletes to win in the competition.

220 The research should not be limited to particular sports but variety of sports should be considered. A comparison
221 of male and female elite athlete's self-talk could also shed a new light to this study, due to lack of female elite
222 athletes studies conducted on self-talk in competition (Perez-Encinas et al., 2016). Self-talk used on individual
223 or team sport athletes could provide different results, even performing the same activity ??Cutton & Hearon,
224 2015). Although there are obstacles of concurrent report in competition, it could also bring another perspective
225 in self-talk in competition. Usage of video, heart-rate monitor or other technical devices to support the self-talk
226 retrospective report might be a merit. Finally, the self-talk report should always be reviewed with the athletes
to see if the self-talk is correctly recalled or categorized (Van Raalte et al., 2014).^{1 2}

motivational interpretation: motivating or demotivating;
5) function: motivational or instructional; and 6)
frequency.

Figure 1:

Figure 2:

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