

Exploring self-talk and affective states in sport

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Accepted 13 February 2001

In this study, we examined (1) the relationship between self-talk and affect and (2) the nature of motivating self-talk. Ninety high-school athletes completed the Affect Grid and the Self-Talk Grid before practice and competition. Significant positive second-order partial correlations of low to moderate strength offered support for a relationship between self-talk and affect. In addition, significant positive second-order partial correlations of moderate strength were found for a relationship between negative-positive self-talk and demotivating-motivating self-talk. An examination of scatter plots indicated that some athletes rated their self-talk as negative as well as being motivational. These findings lend support to the suggestion that negative self-talk may motivate some athletes.

Keywords: affect, motivation, self-talk.

Introduction

Although the sport literature has tended to focus on the effects of pre-competition mood on performance, some research has been conducted on pre-competitive affect (e.g. Ntoumanis and Biddle, 1998; Greenlees *et al.*, 1999). Affective reactions involve fairly basic cognition and reveal preferences about states that athletes value more than others (Zajonc, 1980; Batson *et al.*, 1992). A change to a more valued state is associated with positive affect, whereas a change to a less valued state is associated with negative affect. The strength of the affect is dependent on the change in preference for a currently valued state from a previous state (Batson *et al.*, 1992).

Batson *et al.* (1992) argued that it is possible for an athlete to experience affect, mood and emotion after a good or poor performance. Although all three constructs are strongly related to one another, there are distinct differences between them. Affect, mood and emotion can all be defined along the dimensions of hedonic tone or valence (positive-negative) and intensity (weak-strong). Affect is considered the most general and fundamental and emotion the most specific. According to Batson *et al.*, it is impossible to have a mood or emotion without affect; however, one can be in

an affective state without being in a particular mood or having a certain emotion, although this is unlikely. Functionally, mood is differentiated from affect in that it also incorporates feelings of pleasure or pain about future events. Emotion, on the other hand, stems from one's goals and an assessment of one's current position in relation to these set goals (Batson *et al.*, 1992). An example of the three aforementioned constructs may help clarify the distinctions between them. After winning a match, soccer players may *prefer* the feeling of winning to that of losing (affect), may be looking forward to celebrating with their team-mates and thus be in a positive happy mood, while simultaneously experiencing joy (emotion) due to the accomplishment of their goal. The focus of the present study was on athletes' affect and, more specifically, the alteration of affect.

As methods of altering affect have not received much consideration, it is useful to consider the research that has been conducted on mood management, a closely related topic. Mood management has received increasing attention from researchers over the past decade or so (e.g. Mayer *et al.*, 1991; Salovey *et al.*, 1993; Wegner and Pennebaker, 1993; Thayer *et al.*, 1994; Stevens and Lane, 2000). Earlier research had shown that individuals use a variety of strategies to change their mood (see Rippere, 1977; Morris and Reilly, 1987; Gallup and Castelli, 1989), including listening to music, keeping busy, going for a walk,

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religious practice and thinking of the cause of the bad mood. Thayer *et al.* (1994) repeated and extended this previous research. They found that the most frequently used strategies for changing a bad mood were, in descending order: talk to or be with someone, control thoughts (e.g. think positively, concentrate on something else, give oneself a pep talk), be alone, rest or sleep, carry out chores, exercise and listen to music.

In addition, Thayer *et al.* (1994) suggested that strategies used to alter bad mood could be grouped into six categories: active mood management (e.g. exercise), seeking pleasurable activities and distraction, passive mood management (e.g. watch television), social support (e.g. talk to someone), direct tension reduction (e.g. have sex) and withdrawal or avoidance. Their research indicated that differences in biological sex, age, education and personality do not influence the use of such strategies. Recently, Stevens and Lane (2000) assessed the frequency of use of such strategies by athletes. In using an extended version of the 29 items used by Thayer *et al.* (1994), they found that athletes, similarly to the general population, use a broad spectrum of self-strategies. The most frequently reported were exercise, listening to music, talking to or being with someone, and thought control. It becomes apparent from the aforementioned studies that both athletes and members of the general public use similar mood management strategies. However, as Stevens and Lane (2000) pointed out, it is unclear how effective these strategies are in altering mood.

One strategy used by athletes to manage mood, thought control, has considerable overlap with self-talk. Zinsser *et al.* (1998) suggested that self-talk is one strategy that is available to athletes to alter their affect. Self-talk has been defined as a 'dialogue [in which] the individual interprets feelings and perceptions, regulates and changes evaluations and convictions, and gives him/herself instructions and reinforcement' (Hackfort and Schwenkmezger, 1993, p. 355). Although Zinsser *et al.* (1998) provided anecdotal evidence for the use of self-talk to alter affect, there is very little empirical support for their proposal in the literature.

Research on self-talk has focused primarily on the effects of positive and negative self-talk on performance. Both field and laboratory-based research has been conducted on the topic, with more support for the use of positive self-talk to enhance performance coming from laboratory-based studies (e.g. Dagrou *et al.*, 1992; Van Raalte *et al.*, 1995). Field-based research has yielded rather more equivocal results, ranging from support for the use of positive self-talk (e.g. Mahoney and Avenier, 1977) to that for the use of negative self-talk (Highlen and Bennett, 1983). According to Van Raalte *et al.* (1994), one possible explanation for the mixed results of field-based research is due to recall bias. To circumvent

this issue, Van Raalte *et al.* observed tennis players' use of external self-talk (i.e. self-talk that is said out loud). They found that, although positive self-talk was not related to winning, negative self-talk was associated with losing. Van Raalte *et al.* suggested that the lack of a relationship between positive self-talk and winning was due to the greater likelihood of positive self-talk being internalized by the tennis players. Although positive self-talk may have been used by the players to the same extent as negative self-talk, it could not be observed, which subsequently had repercussions for the reported correlation between positive self-talk and winning. Van Raalte *et al.* (1994) further suggested that negative self-talk may be motivational for tennis players. The findings of Goodhart (1986) provide support for their argument. Participants who used negative self-talk tried harder at avoiding failure than those who used positive self-talk.

Although Van Raalte *et al.* (1994) were the first to propose that negative self-talk may be motivating for athletes, Rushall (1984) had earlier proposed that self-talk, in general, serves various motivational functions for athletes. He suggested that self-talk should include task-specific statements (i.e. technique-related), mood words (describing characteristics of the task, e.g. blast, explode) and positive self-talk to increase encouragement and effort, relieve boredom and combat fatigue. As a result, self-talk may be viewed along two dimensions, negative-positive and demotivational-motivational. Alternatively, one could call the negative-positive dimension 'self-talk valence' and the demotivational-motivational dimension 'self-talk intensity'.

The aims of the present study were two-fold. The main aim was to examine the relationship between self-talk and affect as proposed by Zinsser *et al.* (1998). We expected evidence for a relationship between the two variables. The secondary aim was to examine the relationship between athletes' negative-positive (valence) and demotivational-motivational (intensity) self-talk before both practice and competition. As the investigation was exploratory in nature, no *a priori* hypotheses were offered with respect to this secondary aim.

Methods

Participants

Ninety Canadian high-school athletes (59 males, 31 females) aged 16.0 ± 1.4 years (mean $\pm$ s) participated in the study. They competed in various sports, including basketball ($n = 33$), ice hockey ($n = 7$), swimming ($n = 10$), rugby ($n = 20$) and volleyball ($n = 20$).

Measures

Affect Grid. The Affect Grid (Russell *et al.*, 1989) consists of two single items that measure affect. Each item or bi-polar dimension of affect (i.e. unpleasant–pleasant and sleepiness–arousal) is given a response on a 9-point scale, with 1 equating to extremely unpleasant and extreme sleepiness and 9 equating to extremely pleasant and extremely high arousal. However, as the instrument is in the form of a grid, participants respond to both items simultaneously, by checking off only one square within the grid. As a result, this instrument provides an extremely quick measure of affect, taking just seconds to complete. It has been shown that the two dimensions comprising the Affect Grid are independent constructs, as theoretically proposed (Russell *et al.*, 1989; Killgore, 1998). It has also been demonstrated that the instrument possesses adequate reliability (Russell *et al.*, 1989) and has at least moderate validity (Russell *et al.*, 1989; Killgore, 1998), although it is simply a general measure of affective state.

Self-Talk Grid. The Self-Talk Grid was designed specifically for the present study and is based on the Affect Grid. It too consists of two single items, responded to simultaneously on a 9-point scale (1 = extremely negative/extremely demotivational, 9 = extremely positive/extremely motivational). The first item or bi-polar dimension of the grid assesses an athlete's negative–positive self-talk or self-talk valence; the second bi-polar dimension assesses demotivational–motivational self-talk or self-talk intensity. As with the Affect Grid, athletes respond to both items by checking off one square within the grid.

Procedure

The participants were required to fill out the two grids twice, once immediately before a practice and once 30–45 min before a competition. Because the grids can be completed in a matter of seconds, they have minimal impact on athletes' preparation for either practice or competition. Before completing the grids, the participants were informed of the nature of the study, and were assured complete confidentiality of their responses. They also read a description of self-talk based on Hackfort and Schwenkmezger's (1993) self-statement oriented definition. Pertinent demographics (name, age, sex and sport) were also recorded. Parental consent was obtained from all participants before data collection.

Data analysis

Mean scores for the four subscales were calculated. The data collected were normally distributed (i.e. the

standard deviation was greater than 1.00 and the skewness was less than 2.00). Although the particular sports the participants competed in were governed by the time of year in which data collection took place (due to the high-school athletic calendar), they were representative of the high-school athletic population. As such, the underlying assumptions for the test statistics were met. A one-way analysis of variance was then run to determine if there were any differences between the sexes for the four dimensions under the two settings. As the study was exploratory, we also wished to determine if the athletes recorded different self-talk and affect scores in the practice and competition settings, so as to achieve a greater understanding of the relationship between self-talk and affect. To this end, a repeated-measures Hotelling's T^2 -test was conducted with repeated measures on setting (the dependent variables were the self-talk and affect dimensions). Finally, partial correlations were performed between the affect and self-talk dimensions, and between negative–positive and demotivational–motivational self-talk, to examine the relationship between self-talk and affect and the nature of self-talk, respectively.

Results

The mean scores and standard deviations for each of the four grid dimensions in both the practice and competition settings are reported in Table 1. A one-way analysis of variance revealed no significant differences between the sexes, except that males were more aroused than females in both settings (practice: $F_{1,89} = 7.70$, $P < 0.01$, $\eta^2 = 0.08$; competition: $F_{1,89} = 5.87$, $P < 0.05$, $\eta^2 = 0.06$, respectively). As a difference between the sexes was noted on one dimension only (i.e. the sleepiness–arousal dimension) and as the effect sizes were very small, the sex of the participant was not considered in the subsequent analyses.

The Hotelling T^2 -test, with repeated measures on the setting, revealed a significant multivariate main effect ($F_{4,86} = 25.6$, $P < 0.001$, $\eta^2 = 0.54$). Univariate *post-hoc* tests revealed that the participants reported significantly different scores on three of the dimensions: negative–positive self-talk ($F_{1,89} = 24.1$, $P < 0.001$, $\eta^2 = 0.21$), demotivational–motivational self-talk ($F_{1,89} = 19.8$, $P < 0.001$, $\eta^2 = 0.18$) and sleepiness–arousal affect ($F_{1,89} = 89.9$, $P < 0.001$, $\eta^2 = 0.50$). The unpleasant–pleasant affect dimension was not significant ($F_{1,89} = 3.51$, $P = 0.06$). It should also be noted that, on all dimensions and for both settings, the athletes reported values over the half-way mark on the respective scales.

Second-order partial correlations were then performed between the dimensions of self-talk and affect

Table 1. Values for the variables examined (mean ± s)

Dimension	Practice	Competition
Negative–positive self-talk	5.50 ± 2.05 ^a	6.50 ± 1.90 ^a
Demotivational–motivational self-talk	6.39 ± 1.64 ^b	7.14 ± 1.32 ^b
Unpleasant–pleasant affect	6.27 ± 1.75	6.67 ± 1.70
Sleepiness–arousal affect	5.36 ± 1.83 ^c	7.14 ± 1.55 ^c

Note: Means with the same subscript differ significantly at $P < 0.001$.

Table 2. Second-order partial correlations between self-talk and affect for practice and competition

Dimension	1	2	3	4
Practice				
1. Negative–positive self-talk	-	0.243*	0.254*	0.065
2. Demotivational–motivational self-talk		-	0.027	0.306**
3. Unpleasant–pleasant affect			-	0.207
4. Sleepiness–arousal affect				-
Competition				
1. Negative–positive self-talk	-	0.225*	0.353**	0.063
2. Demotivational–motivational self-talk		-	0.039	0.500***
3. Unpleasant–pleasant affect			-	0.150
4. Sleepiness–arousal affect				-

*** $P < 0.001$, ** $P < 0.01$, * $P < 0.05$.

under both settings to rule out the influence of the other dimensions, thus achieving a more accurate picture of any relationships. As can be seen in Table 2, there were significant correlations between the respective valence and intensity dimensions of self-talk and affect under both practice and competition. Table 2 also reports non-significant correlations, such as those between the respective affect dimensions.

The secondary aim of the study was to establish the relationship between negative–positive self-talk and demotivational–motivational self-talk. As a result, second-order partial correlations were conducted on the two dimensions of the Self-Talk Grid for both practice and competition. As can be seen in Table 2, in both settings the two dimensions were positively correlated. To understand better the relationship between negative–positive self-talk and demotivational–motivational self-talk, scatter plots were constructed for the two dimensions in the two settings. It is evident from Figs 1 and 2 that the more self-talk was viewed as being positive, the more it was viewed as being motivational. However, it can also be seen that some athletes who reported their self-talk as being negative also interpreted it as being motivational. A final point

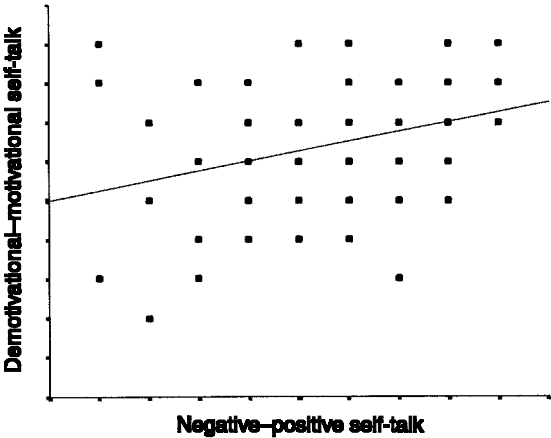


Fig. 1. Scatter plot illustrating the relationship between negative–positive and demotivational–motivational self-talk in a practice setting.

of interest is that a few athletes who reported their self-talk as being positive viewed their self-talk as being demotivational, although this was more pertinent in the practice setting.

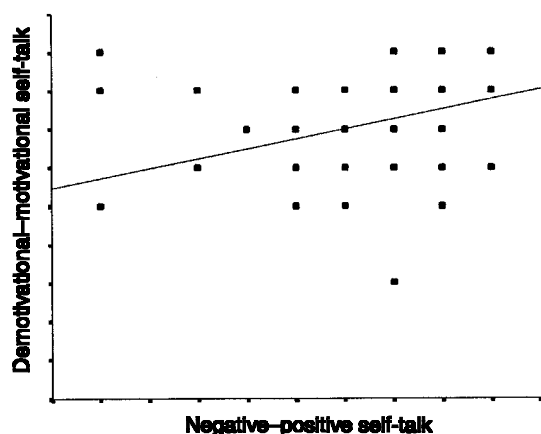


Fig. 2. Scatter plot illustrating the relationship between negative-positive and demotivational-motivational self-talk in a competition setting.

Discussion

The aims of this study were to assess the relationship between self-talk and affect (Zinsser *et al.*, 1998) and to examine the nature of motivating self-talk. Our results showed low to moderate positive correlations between self-talk and affect. We also found a positive relationship between negative-positive and demotivational-motivational self-talk; however, scatter plots suggested that negative self-talk can be interpreted by some athletes as being motivational.

That the dimensions of the Self-Talk Grid were significantly correlated with the dimensions of the Affect Grid provides preliminary support for a relationship between self-talk and affect. As the study was correlational, it is not clear whether self-talk can cause alterations in an athlete's affective state. However, the present study is the first to offer support for a relationship between self-talk and affect. Indeed, in a manipulation check, Goodhart (1986) did not find an association between negative or positive thinking and affect. Goodhart's finding is perhaps symbolic of previous self-talk studies, which did not operationalize self-talk as self-statements and yielded rather equivocal results. Therefore, our results also lend support to the use of more specific operationalizations of self-talk. That the athletes in the present study reported significantly different ratings in the practice and competition settings for three of the four dimensions examined, yet the respective intensity and valence dimensions of self-talk and affect in both settings were correlated with each other, suggests that the relationship between the two constructs is somewhat robust. However, further research is required to confirm the relationship between self-talk and affect.

The partial correlations conducted show that the hedonic tone or valence dimension (unpleasant-pleasant affect) was positively correlated with the corresponding self-talk valence dimension (negative-positive self-talk), while the intensity dimension (sleepiness-aroused affect) was positively correlated with the corresponding self-talk intensity dimension (demotivating-motivating self-talk). That the corresponding self-talk and affect dimensions are related makes intuitive sense. As such, it is probable that athletes' positive self-statements alter their affective state positively. Future studies should use experimental research protocols so that a better understanding of the self-talk-affect association can be realized.

A secondary aim of the present study was to examine the nature of motivating self-talk. Moderate positive correlations were found between the negative-positive and demotivating-motivating self-talk dimensions for both practice and competition. This suggests that, as athletes' self-talk becomes more positive, it is viewed as more motivating. However, an examination of the scatter plots of the relationship between the two variables indicates that, for some athletes, self-talk is viewed as being negative but still motivating. Therefore, the present study offers preliminary indirect support for the contention of Van Raalte *et al.* (1994) that negative self-talk may be associated with better performance, by having a positive influence on athletes' motivation. It also supports Goodhart's (1986) suggestion that individuals completing an anagram task in a negative thinking group possessed more motivation than those in a positive thinking group; consequently, the members of the negative thinking group tried harder to avoid failure on the task.

It is important to realize that we are not promoting the use of negative self-talk by athletes. Although some athletes under certain circumstances may find such self-talk motivating, the perpetual use of negative self-talk may have a detrimental effect on, for example, self-confidence, a most undesirable side-effect. Further study into the nature of self-talk is warranted. On a similar theme, Horn and Lox (1993) proposed that the use of negative self-talk by athletes could be connected to their own perceptions of competence. It follows that future research should examine the relationship between perceptions of competence and the use of negative-positive self-talk. Specifically, one might expect a negative relationship to exist between perceived competence and negative self-talk (Horn and Lox, 1993).

An additional consideration from the present study is that athletes' self-talk was more positive before competition than before practice. One explanation for this is that athletes use positive self-talk to build their self-confidence, and that building self-confidence is most

important just before competition. The different uses of positive and negative self-talk in practice versus competition warrants further investigation. Furthermore, the frequency of use and direction (i.e. demotivating–motivating) of self-talk may have a greater impact on performance than the extent to which self-talk is negative or positive. As such, the frequency of use and motivational influences of self-talk should also be investigated.

A final consideration relates to the use of the Affect Grid in the present study. We found that the dimensions of the instrument were independent of each other. This is in accordance with the theoretical predictions of Russell *et al.* (1989), as well as with their initial studies seeking to validate the Affect Grid. Our results, therefore, offer some support for the Affect Grid as a potentially valuable instrument in sport and exercise settings.

In conclusion, our results suggest that there is a relationship between self-talk and affect and, therefore, they offer some preliminary support for the use of self-talk as an intervention to bring about changes in athletes' affective states (Zinsser *et al.*, 1998; Stevens and Lane, 2000). However, as the direction of the relationship between self-talk and affect could not be established, we recommend that experimental studies should be conducted in the future. Furthermore, our results offer support for the contention that negative self-talk can be motivating for the athlete and is not necessarily detrimental to performance.

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Appendix: Self-Talk Grid

Extremely negative

Extremely positive

Extremely demotivational

Extremely motivational

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