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Self-Regulation Skills of a Competitor Type vs. a Training Champion Athlete in Artistic Roller Skating: A Season Long Case Study in Elite Sport Competitions

Harald Barkhoff  
University of Hawaii at Hilo

Elaine M. Heiby  
University of Hawaii at Manoa

Ian S. Pagano  
Cancer Research Center of Hawaii

ABSTRACT

The purpose of this case study was to investigate whether the use of self-regulation skills prior to a competition partly accounts for differences in performance between a successful elite roller skater classified as a “competitor type” and an unsuccessful elite roller skater classified as a “training champion”. The two skaters completed a 56-item self-regulation questionnaire before five and nine competitions respectively during a six month championship season. The results indicated that the competitor type skater reported a significantly lower level of volitional inhibition – self-control, a significantly higher level of self-discipline, a significantly higher level of life demands, and a significantly higher level of threats than the training champion. Additionally, for both skaters general self-regulation competency and self-discipline were higher during the earlier events than during the later events. The results support the future investigation of the effect of self-regulation skills upon elite sports performance.
Introduction

Self-regulation skills involve controlling one's behavior in a way that is fairly independent of external reinforcement or punishment contingencies (Kanfer, 1970). Self-regulation skills have been shown to be related to general adjustment (Kuhl, 1983, 2001), emotional states (Fröhlich & Kuhl, 2003; Schneider, Bös, & Rieder, 1993), health-related habits (Mezo & Heiby 2004), and sport performance (Barkhoff, 2000; Beckmann, 2001; Beckmann & Kazén, 1994; Kane, Baltes, & Moss, 2001; Mahoney & Avener, 1977; Singer, 2002; Van Ralte & Brewer, 1996). Self-regulation has also been referred to as self-control, self-management, self-reinforcement and self-instruction among other terms, and can be measured by various psychometrically sound self-report questionnaires (Heiby, Mezo, & Kameoka, 2003). In sports, self-regulation skills (in addition to other factors such as ability and motivation) are posited to partly account for performance differences when the athlete is faced with contingencies commonly referred to as life demands and threats, including those involved in elite sport competitions (Barkhoff).

In this study, self-regulation skills are hypothesized to partly account for differences in performance between a successful elite artistic roller skater classified as a "competitor type" and an unsuccessful elite artistic roller skater classified as a “training champion”. We identify a competitor type as an athlete who excels in not only transferring his or her achievements from training to competition, but possibly surpasses them and achieves even better results in competition. These better results are also known as peak performances (Gould & Damarjian, 1996; Taylor, 1996; Williams & Krane, 1993). We identify a training champion as an athlete who repeatedly fails in competition despite good results during training (Tschakert, 1987). Barkhoff and Heiby (2004) found that training champions and competitor types can be identified among elite artistic roller and figure skaters.

Self-regulation skills may assist athletes when setting and meeting championship level performance goals that have been accomplished outside of the competitive situation. Therefore, self-regulation skills are deemed predictive of generalization of performance for elite athletes who have demonstrated the ability of and motivation for sport achievement in situations of lower immediate demands and threat of punishment or failure to the situation of sport competition. Self-regulation skills may involve controlling performance enhancement factors, such as arousal level, performance expectancy, and attentional focus (Barkhoff, 2000; Beckmann, 2001; Beckmann & Kazén, 1994; Schneider et al., 1993; Singer, 2002) when there is a great demand for performance goals and the threat of failure if they are not met. These performance enhancement factors have also been shown to be predictors of future sports performance (Barkhoff, 2000).

The self-regulation model by Kuhl and Fuhrmann (1998) consists of self-regulation competence and volitional inhibition, which includes self-control and self-discipline when coping with life demands and threats. Elite artistic roller and figure skaters face intense demands and threats when performing in the spotlight in front of an audience and judges at a world championship competition. Whereas the self-regulation model's use and application has been demonstrated in the field of psychology (Beckmann & Kellmann, 2004), it still needs to be tested in the field of sport psychology pertaining to elite athletes. Kuhl and Fuhrmann tested their model in daily life situations, such as setting a goal and trying to comply even when faced with mental obstacles (such as unpleasant feelings, doubt, failing to achieve a short term goal on the way to
the long term goal, etc.). The model defines self-regulation competence as self-motivation, control of activation, and self-determination. A greater degree of self-regulation competence has been shown to be positively associated with more successful sport performance (Barkhoff, 2000; Beckmann, 2001; Beckmann & Kazén, 1994). The model defines volitional inhibition-self-control as hesitation in decision-making, volitional passivity, and weakness in concentration. A high level of volitional inhibition-self-control implies spiritlessness and lack of initiative and is posited to interfere with sport performance, which is an aspect of the model that remains to be evaluated in terms of sports performance. This study evaluates whether these findings generalize to elite artistic roller skaters.

The self-regulation model defines self-discipline as goal fixation, conformity (e.g., to standards such as sport rules), and preoccupation after failure (Kuhl & Fuhrmann, 1998). A greater degree of self-discipline with regard to compliance to sport performance goals in the face of obstacles (e.g., outperforming other athletes in the presence of spectators) has been shown to be associated with more successful sports performance (Beckmann, 1991). The relation between volitional inhibition-self-control and sport performance by elite artistic roller skaters is also inspected in the current investigation.

Situational factors under which self-regulation skills are critical for peak sport performance are viewed in the Kuhl and Fuhrmann (1998) self-regulation model as life demands and threats. Life demands may be construed to include the demands of competition in elite sports, whereas threats may be construed to include anxiety related to the negative consequences of unsuccessful performances. Swain and Jones (1992) found that self-described highly competitive field and track athletes reported fewer threats in the form of less anxiety prior to competition than did those who described themselves as less competitive. Barkhoff (2000) found that among elite figure and artistic roller skaters greater demands and lower threats were associated with better sport performance. More recently, a literature review by Skinner and Brewer (2004) concludes that perception of competition as a positive challenging demand may enhance sport performance. Additionally, Barkhoff (2000) and Barkhoff and Heiby (2004) showed that a successful performing competitor type elite artistic skater reported the situation of competition more as a challenge, whereas an unsuccessful performing training champion elite skater reported the situation of competition more as a threat. Perceived differences in the demands and threat of a competition may in part be a function of differences in self-regulation skills.

The purpose of this study was to investigate five hypotheses that a competitor type and a training champion elite artistic roller skaters report stable differences in three aspects of self-regulation as well as in life demands and threats. According to Kuhl and Fuhrmann’s (1998) self-regulation model, we expected the competitor type athlete to exhibit more self-regulation competence (Hypothesis 1), lower volitional inhibition - self-control (Hypothesis 2), more self-discipline (Hypothesis 3), more life demands (Hypothesis 4), and fewer threats (Hypothesis 5) in the situation before competition compared to the training champion type athlete. Past research has shown that pre-performance (Singer, 2002) and the moment before a competition are of particular importance insofar as they provide an opportunity for self-regulation of arousal level and mood (Barkhoff, Pagano, & Heiby, 2007), performance expectancy, and attentional focus (Barkhoff, 2000; Beckmann, 2001; Beckmann & Kazén, 1994; Schneider et al., 1993; Singer, 2002). Given the dynamic nature of the situations before competition, including changing emotional states (Hill
The self-regulation skills, life demands, and threats of the two types of elite athletes in the present study were assessed over a whole season (approximately six months) directly before competition performances at five points of measurement (for the competitor type) and nine points of measurement (for the training champion) during all skated competitions. The two skaters often participated in different competitions during the season resulting in different numbers of competitions skated. However, no specific hypotheses regarding changes in self-regulation skills, life demands, or threats over the season are offered.

**Method**

**Participants**

Two artistic roller skaters who have a history of more than 15 years in competitive artistic roller skating participated in the study. Both were members of the German national team when the study was conducted. One skater was a 21-year-old female who was classified as a competitor type. She had a history of meeting or surpassing training performance during competition. She became the World Champion for two sequential years, one in which the study was conducted. The other skater was a 25-year-old male who was classified as a training champion. This athlete had a history of meeting training but not competition goals set by him and his coach before the season. With reference to prior studies (Barkhoff, 2000; Barkhoff & Heiby, 2004), it was assumed that gender of the participant was not a major confound in this study pertaining to self-regulation skills. Both skaters were classified by five expert judges (three licensed coaches, one international judge, and one coach who is also a licensed judge) in an earlier study (Barkhoff & Heiby). The classification of type of elite athlete was based on observation of the participants’ performance prior to the onset of the Barkhoff and Heiby study as well as before the present study. The five expert judges had long-term knowledge about the skaters’ performance and classified the skaters into one of three groups: Competitor type, training champion, or mixed type. If four out of five expert judges classified the athlete as a particular type, the skater was so-classified. Using this criterion, the female skater was classified as a competitor type and the male skater as a training champion in the Barkhoff and Heiby study. Both of the same skaters then participated in the present study.

Both skaters were competing as “single skaters”. Whereas the competitor type skater participated only in “figure skating” for this study, the training champion also performed “free skating” involving both short and long programs. It should also be noted that the competitor type practices and competes in free skating. As described in the Data Analysis section below, data from figure programs only were used to test the hypotheses regarding the relation between type of athlete and self-regulation skills. However, data from the short and long free skating programs for the training champion were analyzed to inspect changes in self-regulation skills for that skater over time. Temporally stable self-regulation skills before performances of his different programs would support categorizing him as a “type” who repeatedly shows a similar psychological profile.

**Materials**

Self-regulation skills as well as life demands and threats were assessed with the German language “Selbststeuerungs-Inventar-Kurzform” (SSI-K; Kuhl, 1997), which was designed to test
the Kuhl and Fuhrmann (1998) self-regulation model. The SSI-K consists of 56 items with five scales: (1) self-regulation competence (12 items), (2) volitional inhibition – self-control (12 items), (3) self-discipline (12 items), (4) life demands (10 items), and (5) threats (10 items). The items are rated on a four point Likert scale. Sample translated items from each subscale are as follows: (1) self-regulation competence “I feel that most of the time I really want to do the things I do”; (2) volitional inhibition – self-control “When I want to concentrate on something my thoughts often wander”; (3) self-discipline “Several times per day I rehearse the things that I want to get done”; (4) life demands “At present, I am confronted with many difficulties in my life.”; and (5) threats “I experience many things in my life as threatening.” The SSI-K is scored by summing individual item scores for each subscale (some items are reverse scored). Higher scores reflect greater intensity of the aspects of self-regulation, life demands and threats. The subscales have acceptable internal consistency reliability estimates (Kuhl): self-regulation competence ($\alpha = .86$), volitional inhibition – self-control ($\alpha = .90$), self-discipline ($\alpha = .80$), life demands ($\alpha = .84$), and threats ($\alpha = .84$). The construct validity of the SSI-K has preliminary support. For example, Kuhl and Fuhrmann report that the SSI-K subscales correlate as expected with the German language version Neuroticism-Extraversion-Openness Five-Factor Inventory (Borkenau & Ostendorf, 1991) and the Intelligenz-Struktur-Test (Amthauer, 1973), a German language standardized measure of general intelligence. Construct validity of the instrument also has been supported for the prediction of the relation between self-regulation skills and performance among elite athletes during competition and for the discrimination of self-regulation skills among elite athletes between training and competition (Barkhoff, 2000). No gender differences of SSI-K scores were found in the Barkhoff study or in other studies utilizing different measures of self-regulation skills (Heiby et al., 2003). Therefore, it is assumed that gender of the participant is not a major confound in the present investigation of self-regulation skills.

Procedure

Informed consent was obtained from the participants prior to the beginning of the study. The investigation took place at five points of measurement for the competitor type and nine points of measurement for the training champion, taking into account all skated competitions of both skaters during one season. The season lasted approximately six months. For both skaters the season started with the International German Cup in Artistic Roller Skating, followed by the Regional Artistic Roller Skating Championships. Subsequently, only the competitor type participated in the South German Artistic Roller Skating Championships and the German National Artistic Roller Skating Championships. Both participants skated in the World Artistic Roller Skating Championships, the season’s highlight. Table 1 shows all skated competitions of both participants during the whole season. The skaters were asked to fill out the SSI-K (Kuhl, 1997) 20 minutes before their performance in every competition. This type of data collection is quite unusual knowing that most top athletes would not agree to be interrupted in the precarious situation of preparation just before an important competition. The first author knew both skaters from his own sport experience, which may be one reason for their volunteering in spite of the aggravating circumstances of the study. The skaters were also offered their individual SSI-K scores after the end of the study, which could help them to discover and understand more about their behavior and possibly improve their future performance.
Performance and result (place) of every competition were determined by professional judges and then documented by the first author. Performance was measured by a judges’ catalogue of criteria (checklist) according to the “Artistic Roller Skating – Special Regulations & Sport Rules” (International Artistic Roller Skating Federation, year? Not cited in reference section). This observational checklist assists a judge in identifying and scoring prescribed elements. The checklist provides a score of difficulty for every performed jump, spin and different elements in “figure skating” such as “brackets”. It also contains a point system for mistakes in performance (for example, falling down or putting a foot down in “figure skating” receives a 0.3 point deduction for that element). The average of every jump, spin and element performance in “figure skating” yields the overall score. Although psychometric information on this behavioral checklist is not available, this instrument is commonly used by professional judges (Findlay & Ste-Marie, 2004; Looney, 2004). Checklist scores were used to rate performance as successful or unsuccessful by comparison to the overall scores given in training and in competition. Similar or superior scores in competition compared to training scores were categorized as successful. Competition performances with lower scores compared to training scores were categorized as unsuccessful.

Whereas a panel of five professional judges rated performance during competition, four observers rated performance during training before every competition. The four observers included the first author who performed seventeen years in elite competitive sports, became four times a National Champion, won one silver and one bronze medal at European Championships, and placed four times at World championships in the top ten. For more than 14 years he has been coaching top level athletes in artistic roller and figure skating. The other three observers were one licensed coach, one international judge, and one coach who is also a licensed judge. The four observers are considered to be experts in judging elite athletes in artistic roller skating. The

| Table 1. Assessment of Self-Regulation Skills at Five Points of Time for the Competitor Type and at Nine Points of Time for the Training Champion |
|---|---|---|---|
| Time | Competitor type | Time | Training Champion |
| International German Cup in Artistic Roller Skating |
| 1 | Before figures | 1 | before figures |
| 2 | before figures | 2 | before short program |
| 3 | before long program | |
| Regional Artistic Roller Skating Championships |
| 2 | Before figures | 4 | before figures |
| 4 | before figures | 5 | before short program |
| 6 | before long program | |
| South German Artistic Roller Skating Championships |
| 3 | Before figures | 7 | before figures |
| 7 | before figures | 8 | before short program |
| 8 | before long program | |
| German National Artistic Roller Skating Championships |
| 4 | Before figures | 9 | before long program |
observers rated performances during training with 100% agreement. The ratings of the five professional judges and the four expert observers were consistent with the classification of one skater as a competitor type and one as a training champion. For example, the competitor type showed peak performances in competition while the training champion failed to transfer performance from training to competition. The agreement in rating performance by the five professional judges and the four expert observers provides an internal validity check of the initial classification of athletes for this study (Barkhoff & Heiby, 2004). To prevent the athletes from being identified, the result (place) of every competition is not provided here. However, it may be said that the expert-rated competitor type was able to transfer achievements from training to competition and at times surpassed them in competition. In contrast, the expert-rated training champion repeatedly failed in competition but obtained good results during training.

Data Analysis

Data were analyzed using five separate regression models. The five models differed only in the dependent variables, which were chosen from the five subscales of the SSI-K (Kuhl, 1997): self-regulation competence, volitional inhibition - self-control, self-discipline, life demands, and threats. The predictor variables in each model were skater (competitor type vs. training champion), which was dummy coded, and event date (time of the event). The analyses were not “standard” regression, however, because there were only two skaters available for the study. Therefore, the skater identification variable could not be treated as a random variable, and hence, no generalizations could be made to the population of skaters. In most studies, a random (or quasi-random) sample of individuals is obtained with the intent of generalizing the results to the population from which the sample was obtained. However, in this study, the population of individuals is restricted to those who can compete amongst the world’s elite roller skating athletes, severely limiting the number available for sampling. With only two skaters in the sample, the skater variable was necessarily treated as a fixed effect (a variable in which all levels of interest are included and no generalizations to other levels are made).

Whereas skater was treated as a fixed (i.e., dichotomous categorical) variable, the variable for event was not. Treating event as a random variable implied that the events were the “subjects” of this study, and that our intent was to generalize our findings to the population of events, rather than to the population of skaters. For the analyses, the competitor type and training champion skaters were compared across five events for the competitor type and across nine events for the training champion, with each measure taken 20 minutes before each event. A total of five models were run, with each differing in the outcome measure from the subscales of the SSI-K (Kuhl, 1997). The predictor variables in each model were skater (competitor type vs. training champion), program (figure, short, or long), and date of the event. Note that because the competitor type skater only participated in the figure programs, the skaters were compared only for the figure programs and only data from figure programs were analyzed over time. However, because the data were not collected at equal intervals (e.g., observations every month), a time-series approach (e.g., auto- and cross-correlation functions) to the analyses was not appropriate (Vittinghoff, Glidden, Shiboski, & McCulloch, 2005).
Results

Tables 2 and 3 show the respective means, standard deviations, and ranges on the SSI-K (Kuhl, 1997) subscales for the competitor type and training champion athletes. The results of the five repeated measures regression models are shown in Table 4. The two participants did not differ significantly on self-regulation competency. The competitor type skater reported a significantly lower level of volitional inhibition – self-control than the training champion. The competitor type also reported significantly higher level of self-discipline, a significantly higher level of life demands, and a significantly higher level of threats than the training champion. Additionally, both skaters’ self-regulation competency and self-discipline scores were higher during the earlier events compared to the later events. There were no significant findings regarding the effect of program (figure, short, or long) upon self-regulation skills for the training champion.

| Table 2: Mean, Standard Deviation, and Range for the Competitor Type on all Subscales of the SSI-K |
|-------------------------------------------------|-------------------|------------------|---------------|---------------|
| Mean                                           | Standard Deviation | Minimum | Maximum |               |
| Self-regulation competency                     | 24.6              | 1.14    | 23       | 26            |
| Volitional inhibition – self-control            | 20.6              | 1.14    | 19       | 22            |
| Self-discipline                                | 33.8              | 3.25    | 28       | 36            |
| Life demands                                   | 18.8              | 3.11    | 15       | 22            |
| Threats                                        | 15.4              | 2.88    | 12       | 19            |

| Table 3: Mean, Standard Deviation, and Range for the Training Champion on all Subscales of the SSI-K |
|-------------------------------------------------|-------------------|------------------|---------------|---------------|
| Mean                                           | Standard Deviation | Minimum | Maximum |               |
| Self-regulation competency                     | 26.1              | 1.83    | 23       | 29            |
| Volitional inhibition – self-control            | 28.4              | 2.65    | 26       | 35            |
| Self-discipline                                | 27.4              | 2.92    | 22       | 32            |
| Life demands                                   | 13.3              | 1.66    | 11       | 16            |
| Threats                                        | 10.6              | 1.01    | 10       | 13            |
Discussion

The purpose of this case study was to explore whether a competitor type skater repeatedly differs from a training champion in terms of self-regulation skills, life demands, and threats before competition during one season. The competitor type was defined by not only being able to transfer achievements from training to competition but to surpass them and achieve even better results in competition. The training champion was defined as someone who repeatedly fails in competition in spite of good results during training.

As predicted, repeated measures regression analyses found that a competitor type and a training champion skater significantly differed in two aspects of self-regulation and life demands. Over time it was found that, compared to the training champion, the competitor type exhibited lower volitional inhibition – self-control (Hypothesis 2), more self-discipline (Hypothesis 3), and more life demands (Hypothesis 4) before competition. Contrary to expectations, however, the competitor type and training champion did not differ in self-regulation competency (Hypothesis 1). Also contrary to expectations, the competitor type reported more threats than the training champion reported (Hypothesis 5). Additionally, both skaters' self–regulation competency and self-discipline scores were higher during the earlier events compared to the later events. No specific hypotheses regarding changes in self-regulation scores over time were offered, although in general it was expected that the factors affecting performance may change over time given the dynamic nature of the situations before competition (Thayer, 1996) as well as emotional states by definition change over time (Hill & Hill, 1991).

There were no significant findings regarding the effect of program (figure, short, or long) upon self-regulation skills for the training champion. Of course, we could not inspect the effect of program between skaters because the competitor type skater participated in the figure programs only.

The results of three of the five hypotheses of the present study are consistent with Kuhl and Fuhrmann's (1998) self-regulation model. The study provides preliminary findings that volitional inhibition – self-control might interfere with successful self-regulation and, therefore, successful performance, an aspect of the model that had not been investigated in terms of the sport.
performance of elite artistic roller skaters. Artistic roller skating as well as figure skating is a creative and aesthetic individual sport, in which the athletes are requested to present their programs alone in the spotlight of the audience and the judges. The particular context of artistic roller skating might inherently have barriers to maintaining positive self-regulation processes that, in turn, might be essential for successful performances. However, the findings are also consistent with the model's postulate and prior findings (Beckmann, 2001) that self-discipline is important with regard to compliance to goals in the face of obstacles and, therefore, may contribute to successful sport performances among elite artistic roller skaters. Furthermore, the findings with regard to life demands suggest the perceived demands of competition in elite sports are associated with successful performance among elite artistic roller skaters, possibly because the demands are perceived as a positive challenge as has been shown in previous studies of artistic roller skaters and other elite athletes (Barkhoff, 2000; Barkhoff & Heiby, 2004; Skinner & Brewer, 2004).

Higher threat scores had been expected to be related to unsuccessful performances (Barkhoff, 2000; Skinner & Brewer, 2004; Swain & Jones, 1992). However, the findings of this study with regard to threat do not support the hypothesis that the competitor type would exhibit less threat than the training champion before competition. Instead, the competitor type reported more threat than the training champion before competition. The individualized zone of optimal functioning (IZOF) model may help interpret this finding. Hanin (1997) claims that top athletes each have a zone of optimal state anxiety in which they perform best. It seems that the higher state anxiety reflected in the level of threat of the competitor type compared to the training champion does not interfere with peak performances for this particular skater. This result supports the IZOF model which differs from the inverted-U hypothesis (Landers & Arent, 2001) insofar as optimal level of state anxiety does not always occur at the midpoint of the continuum but rather varies from individual to individual. Therefore, the effect of perceived threat of a competition upon performance may not generalize among elite artistic roller skaters.

The finding that both skaters' self-regulation competency and self-discipline scores were higher during the earlier events compared to the later events might be related to the critical time of starting a season. The beginning of a season includes getting used to situations of competition again after the approximate six month break without any competitive situations. Skaters have reported to perceive this first period of time of the season as critical and particularly challenging (Barkhoff, 2000). Exhibiting higher scores of self-regulation competency and self-discipline in less familiar situations at the onset of a season, compared to more familiar situations later in the season, is consistent with the dynamical aspect of Kuhl and Fuhrmann’s self-regulation model (1998) and prior findings on the relation between the self-discipline aspect of self-regulation and sports performance (Barkhoff, 2000; Beckmann, 2001; Beckmann & Kazén, 1994). Alternatively, because the test-retest reliability of the SSI-K (Kuhl, 1997) is unknown, these findings may reflect poor stability of these two subscales on the questionnaire.

Overall, the results of this study provide a starting point in applying Kuhl and Fuhrmann’s (1998) self-regulation model in the field of sport psychology pertaining to elite artistic roller skaters. This study supported the model insofar as successful performances in individual elite skaters might be associated with lower volitional inhibition – self-control, more self-discipline, and more life demands immediately before competition. Further research should investigate if
this postulate holds true for different levels of sport performance as well as different kinds of sport. Beckmann and Kazén (1994) found self-regulation differences in sport disciplines requiring a short-lived, high energy output, like shot-putting, sprint and jump disciplines in track and field, compared to sport disciplines demanding energy regulation such as long distance running. They postulate that different tasks and sport disciplines require various kinds of self-regulatory abilities.

An important characteristic of this study, which encompasses two cases of athletes in artistic roller skating, is the idiosyncrasy of the data. The participants were both elite athletes who competed on an international level. The population of these individuals is extremely small, negating any possibility of large sampling.

However, the small number of participants is surely a limitation in this study. We have attempted to address this shortfall through the use of longitudinal repeated assessment of self-regulation skills, which allowed for an examination of the differences between the two athletes over an entire season. This implies that the effect of self-regulation skills upon performance of elite artistic roller skating generalizes across competitions. However, generalizability of the results from these two cases to the population of elite athletes obviously cannot be demonstrated from this study alone and replication across numerous case studies is needed in order to have confidence in the findings. Another limitation of this study was that the present study compared a female and a male athlete on the SSI-K (Kuhl, 1997) and differences might be related to gender differences. Additionally, the first author and the three experts were the only observers evaluating success of performance during training, which limited the internal validity check of the classification of the athletes into types. The professional relationship between the first author and the participants also may have introduced experimenter bias. However, their classification in the present study is consistent with the classification by the five experts in the Barkhoff and Heiby (2004) study.

In conclusion, the results of this case study support the future investigation of differences in competitive achievement that may be at least partly attributable to the use of situational self-regulation skills. The case study also supports the future investigation of the effect of training in self-regulation skills upon sports performance. Training in self-regulation skills has been shown to be effective in modifying a wide range of behaviors (Febbraro & Clum, 1998) and the benefits of the training may be generalizable to sports performance. For example, interventions such as mental training programs for the enhancement of sport performance at competitions (e.g., Gould, Finch & Jackson, 1993; Landers, 1991; Prakash & Coplan, 2003) might benefit by including self-regulation strategies. This case study suggests that the self-regulation training should include an evaluation of the effect of decreasing volitional inhibition – self-control (and thereby increasing concentration) and enhancing self-discipline (e.g., goal fixation) before competition. Self-monitoring of target behaviors, such as concentration and goal fixation, has been shown to have a positive reactivity effect upon performance (Korotitsch & Nelson-Gray, 1999) and may be feasible to implement immediately before competition.
References


