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**Metaphoric Description and Individualized Emotion Profiling  
of Performance States in Top Karate Athletes**

**Montse C. Ruiz, & Yuri L. Hanin**

Abstract

This paper reports an investigation extending recent studies of a symbolic representation of performance related states (Hanin, 1997; 2000; Hanin & Stambulova, 2002). Consistent with this theoretical framework, the content and frequency of self-generated metaphors with accompanying interpretative descriptors of feeling states in high-level Spanish karate athletes (N=16; 12 men and 4 women) were examined. The athletes generated 98 idiosyncratic, symbolic, and functionally meaningful metaphors and 167 interpretative descriptors of feeling states prior to, during, and after their best and worst performances. The metaphoric images included animate (animals, human beings, mythical characters) and inanimate (vehicles, objects, plants, natural phenomena) agents. As predicted, the content of metaphors and interpretative descriptors reflected high action readiness in best performance and low action readiness in worst performance situations. Moreover, content of metaphors was different prior to, during, and after performances (content overlap ranged from 0.06 to 0.15) and across best and worst competitions (from 0 to 0.18). As expected, self-generated interpretative emotion descriptors were idiosyncratic and context-specific. These descriptors were similar to eight basic emotions (happiness, pride, relief, anger, anxiety, fright, sadness, and shame) from the 15 proposed by Lazarus (2000). Interpretative descriptors had multiple connotations with emotion and non-emotion components of psychobiosocial state. In the follow-up (n=12) after a 5-month interval, the initially generated idiosyncratic metaphors were retained, thus, reflecting stability and consistency of perceived personal meaning of the situation. The findings are contrasted with earlier research and practical implications are suggested.

Key words: psychobiosocial state, emotion, metaphor, IZOF model, athletic performance, karate

## Metaphoric Description and Individualized Emotion Profiling of Performance States

Athletes' subjective emotional experiences related to their successful and unsuccessful performances are one of the key areas of research and application in the practice of sport psychology (Gould et al. 1999; Hanin, 1993, 1997, 2000; Lazarus, 2000; Robazza, Bortoli, Nocini, Moser, & Arslan, 2000). The subjective experiences reflecting an athlete's perspective are essential for the development of effective individualized self-regulation and intervention programs. To capture personally relevant emotion content in the assessment of feeling states, it is recommended to use individualized emotion profiling rather than group-oriented normative scales with researcher-generated items (Hanin 2000; Syrjä & Hanin, 1997). As proposed recently, a more holistic approach employs a metaphor self-generation method to describe symbolically feeling states accompanying individually successful and unsuccessful performances (Hanin, 2000; 2003; Hanin & Stambulova, 2002). The present study extends this approach and examines the usefulness of combining metaphor self-generation method and individualized emotion profiling in the description of performance states in highly skilled athletes.

### Theoretical Rationale

Our approach takes an individualized (Hanin, 1997, 2000) and phenomenological (Dale, 1996; Kerry & Armour, 2000) perspective. This perspective suggests that the athlete's subjective experience is a viable source of information and a first-person description of the most memorable experiences and personal meaning of the situation is especially important.

#### *Performance Related States*

The Individual Zones of Optimal Functioning (IZOF) model distinguishes between emotional states (experiences per se), relatively stable emotional patterns (repeated experiences), and meta-experiences (i.e., knowledge, beliefs, and attitudes about recalled, actual or anticipated experiences) (Hanin, 2000, 2003). The model also advocates a conceptualization of emotion as a component of performance related states. Performance related psychobiosocial state is defined as a situational,

multi-modal, and dynamic manifestation of the total human functioning (Hanin, 1997, 2000, 2003). The multilevel and systems description of performance related states includes at least five interrelated dimensions. Form, content, and intensity describe the structure of athletes' subjective experiences, whereas time and context characterize the dynamics of these experiences.

An athlete's psychobiosocial state manifests itself in seven interrelated form components: cognitive, affective, motivational, bodily, kinesthetic, operational, and communicative. This multiple-form notion has received strong empirical support and it provides a relatively complete description of a performance state (Hanin 1997, 2000). The notion of multiple-form is also shared by Plutchik (1994) who argues that emotions are related to a number of conceptual domains that could be described in subjective, behavioral, functional, trait, diagnostic, ego-defense and coping-style languages. However, most existing research has focused on affective, motivational, bodily components and their interactive effects (Hanin, 2000, 2003). The present study examines if athletes' descriptions of feeling states, related to best and worst competitions have connotations with emotion and non-emotion components of a psychobiosocial state.

The content (or quality) of emotions is usually categorized in terms of discrete or basic emotion syndromes, such as anger, joy, depression, etc. (Lazarus, 2000), or as a global affect based on hedonic tone or positivity-negativity distinctions. The IZOF model combines both approaches conceptualizing emotion content within the framework of four emotion categories derived from the hedonic tone and functionality distinctions. These categories are pleasant and functionally optimal emotions (P+), unpleasant and functionally optimal emotions (N+), pleasant and dysfunctional emotions (P-), and unpleasant and dysfunctional emotions (N-). The four-category framework provides a robust and sufficiently broad structure that can accommodate a wide range of idiosyncratic, self-generated emotion labels (Hanin 2000, 2003).

Within the basic emotion perspective, Lazarus (2000) defines emotion as "an organized psychophysiological reaction to ongoing relationships with the environment...what mediates

emotions psychologically is an evaluation, referred to as an appraisal, of the personal significance for the well-being that a person attributes to this relationship (...relational meaning), and the process” (p. 230). Such relationship or relational meaning is different for each emotion syndrome. Lazarus distinguishes 15 core relational themes for basic emotions as a combination of primary appraisal judgments: goal relevance, goal congruence, type of ego-involvement; and secondary appraisals: options for coping, coping potential and future expectations (see Lazarus 2000, p. 234 for a review of the 15 core relational themes). According to Lazarus there are positively toned emotions (i.e., happiness, joy), negatively toned emotions (i.e., anger, anxiety), borderline emotions (i.e., hope, relief), and non-emotions. This study contrasts idiosyncratic self-generated emotions experienced by athletes with Lazarus’ list of 15 basic emotion syndromes. Additionally, non-emotion components of a state are also examined.

The IZOF-based emotion profile (Hanin, 1997, 2000) visually represents the interactive effects of optimal (positive and negative) and dysfunctional (negative and positive) emotions. An “iceberg” profile indicates predominance of optimal emotions whereas a “flat” or skewed profile indicates predominance of dysfunctional emotions. The IZOF-based profiles have been used to describe not only optimal emotion intensity (Hanin, 2000), but also emotion content (Hanin & Stambulova, 2002). This study examines if the notion of IZOF based- profiles is applicable to emotion and non-emotion content of optimal and dysfunctional feeling states.

Intensity, defined as a degree or amount of strength, extreme force, power, or deep forceful feelings (Collins English Dictionary, 1991, p.803), is a quantitative attribute of subjective experiences. Intensity is expressed in either objective or subjective metrics on a selected parameter of a particular modality. Intensity is functionally related to perceived effort invested into a sporting activity and to energizing (de-energizing) and organizing (dis-organizing) aspects of performance process. The IZOF model conceptualizes intensity at the individual level using the in-out of the zone notion that describes a range of emotion intensities producing either optimal, neutral or

dysfunctional effects on an individual performance (see Hanin, 2000, pp. 79-81 for a more detailed discussion).

Two qualitatively extreme performance contexts, best and worst competitions, have been chosen to study athletes' symbolic representations of their performance states across three functionally different but interrelated situations: (a) pre-event (preparation for action), (b) mid-event (task execution), and (c) post-event (evaluation of performance). This study examines if the content of metaphors reflecting symbolically personal meanings across these three situations are different. Given that the situational appraisals of anticipated and occurred outcomes (Lazarus, 2000) trigger quantitatively and qualitatively different emotional experiences, a change in the content of emotional experiences along the temporal dimension was expected.

The IZOF model explains the functional impact of emotions on performance based on the notion of resources matching. Optimal (helpful) emotions reflect athletes' available resources and their effective recruitment and utilization. In contrast, dysfunctional (harmful) emotions reflect a lack of (or insufficient) resources and their ineffective recruitment and utilization. This study examines the functional meaning of metaphors and interpretative descriptors related to best and worst performances using the notion of resources recruitment and utilization.

### *Symbolic Representation of Subjective Experience*

Symbolizing, regarded as a fundamental human capability, serves as the vehicle of thought (Bandura, 1989). By symbolizing their experience, people give structure, meaning, and continuity to their lives. Moreover, a person's symbolizing ability is especially relevant for individualized interventions, and therefore it implies a strong applied focus.

A metaphor is defined as a figure of speech in which a word or phrase is applied to an object or action that it does not literally denote in order to imply a resemblance, for example *he is a lion in battle* (Collins English Dictionary, 1991, p. 982). A similar term, *simile*, is defined as a figure of speech that expresses the resemblance of one thing to another of a different category, usually

introduced by *as* or *like* (p.1441). In this paper, the term metaphor refers to both metaphors and/or similes.

A metaphor that usually stands for something else is always related to a certain image. As symbolic representations, metaphors provide a holistic picture of one's understanding of something with an emphasis on most individually relevant aspects of personal meaning. Therefore, metaphors are considered an important tool of cognition and communication (Lakoff & Johnson, 1980). Metaphors describing emotions arise from physiological and behavioral characteristics of the emotion, experienced by individuals that map concrete knowledge structures and abstract concepts (Kövecses, 2001). As Kövecses argues, individuals can create metaphors based on the context and on particular subjective experiences.

In sport, coaches and athletes actively use metaphors in the preparation for performance and during competition. The example below, provided by one of our anonymous reviewers, illustrates this point.

*“Archie, one of the main characters in the Australian film “Gallipoli,” is getting ready for a cross-country foot race. His coach/mentor is right next to him at the start, and the conversation goes something like this:*

*Coach: What are your legs?*

*Archie: Steel springs!*

*C: What are they gonna do?*

*A: Take me down the track*

*C: How fast can you run?*

*A: Fast as a leopard!*

*C: How fast are you gonna run?*

*A: Fast as a leopard!*

*And the gun sounds and Archie takes off.”*



Potential value of personally relevant metaphors and their practical use in self-regulation of emotions is discussed in more details elsewhere (see, for instance, Hanin & Stambulova, 2002, p. 412-413). However, this study focuses on the value of metaphors to describe idiosyncratic emotional states rather than on their spontaneous or deliberate use in practices and competitions. This emphasis is based on the assumption that metaphors serve three communicative functions (Ortony & Fainsilber, 1989). First, metaphors allow the expression of what is difficult or impossible to express, if one is restricted to literal uses of language. Second, metaphors constitute compact means of communication making it possible to express a great deal of information (chunks of information) in a succinct manner. Third, metaphors capture the vividness of phenomenal experience. Athletes use metaphors to describe their thoughts, emotions, bodily sensations, behaviors and actions (Hanin & Stambulova, 2002).

Recent studies revealed feasibility and practical value of a metaphor generation method to describe holistically athlete's performance states. For instance, 29 highly skilled Finnish junior ice hockey players were able to generate metaphors describing their "good" and "bad" days; in another study, 148 Finnish junior ice-hockey players used metaphors to describe their successful and poor performances (Hanin, 2000; Hanin et al., 2000). In a more recent study, 85 skilled Russian athletes described metaphorically their feeling states prior to, during, and after best ever and worst ever competitions (Hanin & Stambulova, 2002). Results revealed that symbolic images were highly idiosyncratic and related to action tendencies reflecting high or low readiness to perform. This suggests that metaphoric descriptions may be useful for a holistic and personally meaningful description and better understanding of performance related experiences (Hanin et al., 2001).

These studies are based on the assumption that skilled athletes are aware of, and thus able to recall their experiences, especially in important competitions (Hanin & Syrjä 1995a, 1995b, 1996). This notion has been supported in the study of soccer players that revealed high accuracy in reporting individual emotional experiences. However, previous research did not examine whether or

not symbols describing the most memorable events (best and worst competitions) are stable over time.

Therefore, the *purpose of this study* was to replicate and extend earlier findings by using metaphor self-generation method to describe symbolically performance related feeling states in high-level Spanish karate athletes prior to, during, and after their best and worst performances. Similar to the previous study, it was hypothesized that (1) metaphors and interpretative descriptors are idiosyncratic, holistic and action oriented; (2) the content of metaphoric descriptions reflects high action readiness in best competition, and low action readiness in worst competition; (3) the content of metaphors prior to, during, and after performance situations is different; (4) self-generated descriptors have multiple connotations with different components of the psychobiosocial state; and (5) the IZOF-based iceberg profile visually represents the content frequency of idiosyncratic descriptors in best competition.

As an extension of the previous study, the stability of initially generated metaphors describing performance states and an explanatory value of interpretative descriptors were also examined. Self-generated descriptors of feeling states were contrasted with the content of Lazarus' 15 basic emotions. It was expected that: (a) sport specific emotions would not necessarily represent all Lazarus' basic "context-free" categories; and (b) some descriptors would have non-emotion content.

## Method

### *Participants*

Participants were 16 Spanish high-level karate athletes (12 male, 4 female) aged from 15 to 29 years ( $M = 19.69$ ,  $SD = 3.93$ ). Their sporting experience ranged from 6 to 22 years ( $M = 12.87$ ,  $SD = 4.09$ ). Ten of the athletes (62.5%) competed at the international level in kumite (fighting) category, and six (37.5%) competed at the national level (five in kumite and one in kata category).

### *Instruments*

The metaphor-generation method (Hanin 2000; Hanin & Stambulova, 2002) is an instrument developed within the framework of the IZOF model to symbolically represent athletes' feeling states prior to, during, and after best and worst performances. The first section obtains demographic information such as age, gender, sport event, sporting experience, and skill level. The next section identifies self-generated metaphors and interpretative descriptors of feeling states prior to, during, and after best ever and worst ever competitions. As an introduction, the concept of a metaphor is briefly explained and examples of metaphors describing feelings and emotions in non-sports settings are provided. Asking a person to complete such a sentence as, "When I am on a beach on a bright sunny day, I feel like..." generates a metaphor as symbolic representation of a feeling state. Completing a paraphrased sentence, "In other words, I feel myself..." elicits an interpretation of an athlete's state symbolized in a metaphor. As soon as participants understand the idea of a metaphoric description of psychological states, they are requested to recall their "best ever" competition and to describe how they felt by completing three open-ended sentences and accompanying paraphrases:

1. "Prior to my best ever competition I felt like ..." ("In other words, I felt myself ...")
2. "During my best ever competition I felt like..." ("In other words, I felt myself ...")
3. "After the best ever competition I felt like..." ("In other words, I felt myself ...")

After reporting their feeling states in best ever competition, athletes described how they felt prior to, during, and after their worst ever competition by completing the same three open-ended sentences except for substituting "worst ever" for "best ever." In both cases, athletes generated descriptors without using an emotion stimulus list.

Recall individualized emotion profiling involves a stepwise procedure using a stimulus list of emotion words to identify the idiosyncratic content and intensity of optimal and dysfunctional emotions (see Hanin 1997, 2000; Hanin & Syrjä 1995a, 1995b, 1996 for more details). This methodology identifies positive and negative emotions that are subjectively meaningful in terms of

the individual's past performance history and significant emotional experiences. Athletes generate individually relevant emotion words that best describe their optimal (helpful, beneficial) and dysfunctional (harmful, detrimental) positive and negative emotions. To help athletes generate individual items, the positive-negative emotion stimulus list is used. This list includes positive and negative emotions typically experienced in performance. Hanin (1993, 1994) compiled the English version of the emotion stimulus list through selection and revision of items from the 10 global affect scales described by Watson and Tellegen (1985). Examples of positive items are "active," and "calm"; negative items include "nervous," and "angry." Hanin and Syrjä (1996), reported reliability of idiosyncratic emotion scales in a sample of high-level soccer players. Mean intraindividual Cronbach alphas of each emotion subscale (P+, N+, P-, and N-) ranged from .54 to .90. Their study also provided evidence of recall and prediction accuracy in athletes. Specifically, significant correspondence between recalled and actual scores, and between predicted and actual scores was found in 76.5% and in 70.6% of the players.

Recall scaling includes several steps. First, optimal emotion patterns are identified. Athletes, using the stimulus list, select 4 or 5 positive and then 4 or 5 negative items that best describe their emotions related to individually successful performances in the past. Then dysfunctional emotion patterns are identified by selecting 4 or 5 positive and 4 or 5 negative items that describe their emotions related to individually unsuccessful performances. Athletes use the stimulus list to generate individually relevant positive and negative emotion descriptors and can also add emotion words of their own choice. Each athlete generated idiosyncratic emotion descriptors for the four emotion categories described earlier: P+, N+, P-, and N-.

Emotion intensity. A separate scale related to intensity was used alongside each of the emotions selected by individual athletes. The intensity scale asked, "How much of this feeling or emotion is usually helpful (or harmful) for your performances in competition?" Athletes could indicate either a level or a range of intensity (minimum and maximum amount of the emotion that

was helpful or harmful). The intensity was measured on the Borg's Category Ratio (CR-10) scale (Borg, 1982) based on the range principle and constructed to avoid the ceiling effect. The CR-10 permits ratio comparisons to be made of intensities as well as determinations of direct intensity levels. Other research (Neely, Ljunggren, Sylven, & Borg, 1992) has shown it to be useful in quantifying stimuli such as exercise capacity and pain. In this study a standard format of the CR-10 scale (Hanin, 1994; Hanin, Syrjä, 1995 a, b) translated into Spanish was used with the following verbal anchors: 0= *nothing at all*, 0.5= *very, very little*, 1=*very little*, 2= *little*, 3= *moderately*, 5=*much*, 7= *very much*, 10= *very, very much*, ● = *maximal possible* (no verbal anchors were used for 4, 6, 8, and 9).

### *Procedure*

The present study was divided in two parts. In part I, all 16 volunteer athletes were individually contacted and the purpose of the study was briefly explained. After informed consent was obtained and confidentiality was assured, the athletes answered open-ended questions and generated metaphors. Although all athletes were given questionnaires, in 6 cases (37.5%) the researcher filled out the forms for the athletes. Spontaneous comments made by the athletes during the generation of metaphors were written down verbatim. Athletes generated initial emotion profiles prior to, during, and after best and worst recalled performances, using the list of positive emotions and an additional list of 25 anger items. Examples of anger items included furious, angry, and mad. Then, athletes rated emotion intensity for each of the selected descriptors on the CR-10 scale.

In part II of the study, 12 of the 16 athletes (4 athletes were not available) were contacted again 5 months later and presented with the initially self-generated metaphors and interpretative descriptors. Athletes were asked to indicate to what extent initial symbols were still valid to describe their performance states prior to, during, and after the same previously recalled competitions. New emotion profiles were constructed, using the standard emotion list and a separate

anger stimulus list for pre-, mid-, and post-best and worst competitions. Sessions that lasted from 30 to 40 minutes were tape-recorded.

### *Data Analysis*

Each athlete's responses and all comments were transcribed into an individualized metaphor profile that included demographic data, brief description of recalled competitions, metaphors, and accompanying interpretative descriptors. A metaphor and accompanying interpretative descriptors (a word or sentence) formed a raw data text unit, capturing a different idea or meaning. Text units were organized into groups with similar meanings, using inductive and deductive content analysis (Patton, 1990). Metaphors and interpretative descriptors were inductively analyzed and categorized according to emerging patterns and themes. Deductive content analysis used four sets of categories, conceptually specified in the IZOF model. These included the concepts of: (a) resources recruitment-utilization, (b) strengths-weaknesses, (c) seven form components of performance state, and (d) the IZOF-emotion iceberg (see Hanin 1997, 2000; Hanin & Stambulova, 2002 for details). Consensus at all stages of the analysis was reached between three independent researchers familiar with the qualitative methodology.

A degree of similarity-dissimilarity between metaphors describing athletes' states prior to, during and after best and worst competition was assessed by calculating a content overlap, using the formula proposed by Krahe (1986). Overlap scores ranged from 0 (all metaphors across two situations are different) to 1.0 (all metaphors are similar). Each interpretative descriptor was related to cognitive, affective, motivational, bodily, kinesthetic, operational, and communicative components of psychobiosocial states (Hanin, 1997). Direct relation with the selected component was coded as 1; and indirect connotation was coded as 0.5. All interpretative descriptors were compiled separately for best and worst competitions and their frequencies in each of the four global categories (N-, N+, P+, and P-) were calculated and visually represented.

The content of metaphors and self-generated emotion descriptors in both parts of the study using individualized emotion profiling, were compiled separately for pre-, mid-, and post-performance situations in best and worst competitions. Each interpretative descriptor and self-generated emotion was contrasted with Lazarus' list of 15 basic emotions, based on their core relational themes (Lazarus, 2000). Idiographic emotion profiles were developed for 12 athletes based on their responses in part II of the study.

## Results

### *Metaphoric Symbols of Performance Related States*

Sixteen athletes initially generated 98 metaphors (50 and 48 in best and worst competitions, respectively) and 167 interpretative descriptors prior to, during, and after best and worst performances. As expected, 67 (68.4% of 98) metaphors were entirely different and used only once. Nine (18.4%) metaphors were used twice, three (9.2%) metaphors were used three times, and one (4.1 %) metaphor was used four times. Inductive content analysis of metaphors revealed two large classes of animate (57.1%) and inanimate (42.9%) agents. The animate category included animals (25.5%) "*a tiger*", human beings (29.6%) "*a boy with a new toy*," and mythical characters (2%) "*David against Goliath*"; inanimate category included objects (30.6%) "*a melted ice cream*", vehicles (6.1%) "*a motorbike*", natural phenomena (5.1%) "*a ray*" and plants (1%) "*a lettuce*."

Metaphoric descriptions reflected action tendencies, strengths-weaknesses, and resources recruitment and utilization. Action tendencies included an individual's position, potential to move, and quality of movement (Table 1). As expected, in best performances, athletes' states were characterized by high action tendencies ("*a matador before the killing*," "*a fish in the water*"). In contrast, low action tendencies ("*a stone*," "*a mouse climbing walls*") characterized worst performances. Strength, power, control, and skill were characteristic of metaphors in best competitions ("*a steam roller*"), especially during (93.7%) performances. In contrast, weakness and lack of control, skill, or coping abilities ("*David against Goliath*") were characteristic during

(93.7%) worst competitions. Significant differences in these characteristics between best and worst performances were found in pre-event,  $\chi^2(2) = 13.4, p < .01$ ; mid-event,  $\chi^2(2) = 30, p < .001$ ; and post-event,  $\chi^2(2) = 16.4, p < .001$

Metaphors reflecting available resources (“*a high tension tower*”) and ability to recruit resources (“*eager to take the world on*”) described athletes’ states, especially during (100%) best performances. In contrast, a lack of resources (“*a bird with no wings*”) and inability to recruit resources (“*walking the tightrope*”) were characteristic during (93.7%) worst performances. Similarly, metaphors reflected highly efficient use of resources (“*a lion after its prey*”) during best performances. In contrast, inefficient or poor use of resources (“*an octopus in a desert*”) was more characteristic of metaphors describing athletes’ states during (92.3%) worst competitions (Table 2).

Action tendencies, strengths-weaknesses, resources recruitment, and utilization were all characteristics of perceived readiness to cope with and to control the situation. High action readiness characterized descriptions of athletes’ states prior to best competitions (72.2%). In contrast, low readiness for action was typical for athletes’ perceptions of their states in worst performances (75%).

#### *Incongruous Effects in State-Performance Relationships*

In best competitions, six metaphors (12% of 50) were contradictory and had negative meanings. These negative images (*a melted ice cream*) characteristic of athletes’ states prior to performances (83.3%) were accompanied by negative interpretative descriptors (worried, nervous). However, such states did not have detrimental effects on athletes’ performances. In worst performances, six metaphors (12.5% of 48) were positive and accompanied by positive descriptors (“*a fish in the water,*” comfortable). Nevertheless, these pleasant states, especially characteristic of pre-event states (66.7%), had a detrimental effect upon athletic performances.

#### *Temporal Patterns of Self-Generated Metaphors*



As expected, metaphors describing athletes' states prior to, during, and after best and worst competitions were different. For example, athlete #12 felt like "*a tiger*" (strong, determined, willing) prior to his best combat, like "*a ray*" (very fast) during, and like "*a first-time father*" (happy) after the combat. Similarly, he felt as tired as "*a dog*" before his worst combat, as "*lead*" (could not move) during, and relieved as "*a river getting filled after a dry time*" after the combat. Group level comparisons revealed low overlap of metaphor content between prior to and during (.15), during and after (.06), and prior to and after (.06) performance situations. Across best and worst competitions content overlap was also very low prior to (.18), during (.06) and after (0.0) performances. These findings indicate that the personal meaning of these three performance situations (anticipation for an action, task-execution, and evaluation of performance) was different.

#### *Components of Psychobiosocial States*

Interpretative descriptors had direct or indirect connotations with six components of the performance states. In best competitions, athletes' descriptors had 80.2% (of the total 113.5) connotations with cognitive, and affective components. Cognitive ("*focused*," "*concentrated*") connotations were more characteristic of athletes' states in pre-, and mid-event, whereas affective ("*calm*," "*euphoric*") connotations characterized pre- and post-event states. In contrast, in worst competitions, athletes' descriptors had more connotations with motivational, bodily, kinesthetic, and operational components (33.6%). Motivational ("*unwilling*," "*unmotivated*") and bodily ("*tense*," "*tired*") connotations were more characteristic of pre-event states whereas kinesthetic ("*bad muscular sensations*," "*heavy*") and operational ("*I could not get the rhythm of the combat*") characterized mid-event states. Athletes' interpretative descriptors had no direct connotations with the communicative component.

Figure 1 depicts the frequency profiles of self-generated interpretative descriptors for athletes' feeling states in best and worst performances within the four-category framework. As expected, aggregated iceberg-shaped profiles prior to and during best performances reflected a clear

predominance of optimal positive (P+) descriptors and lower frequencies of negative (N-) and positive (P-) dysfunctional descriptors. An increase in feelings of satisfaction and complacency (P-) were observed after competitions. In contrast, aggregated idiographic emotion profiles prior to, during, and after worst performances displayed a typical dysfunctional pattern with predominance of negative dysfunctional content (N-) and low positive optimal (P+) emotion and non-emotion content.

### *Stability of Metaphoric Descriptions*

Symbolic images initially generated to describe performance states and perceived meaning of the situations were stable. After a 5-month interval, 9 athletes (75% of 12) thought that initially generated metaphors were still the best ways to describe their feeling states. However, two athletes (16.7%) generated new metaphors. Specifically, athlete #7 changed his initial metaphor “*shit on a stick*” for a new metaphor “*The Twin Towers*” (low self-esteem, sunk, and with no value in the world of karate”) to describe his states after worst competition. Interestingly, athlete #2, who had some difficulty in the initial metaphor-generation, now described her states in worst competition using several symbols. Prior to performance she initially felt like “*a pudding*” (unwilling, sweating, and thirsty). Five months later, she felt like “*a boat with no helm*” (“I felt lost, with no course, I was unsure if I could bear the pressure of the opponent”). During performance she initially felt like “*cow shit*”, but she generated two new metaphors in the repeated recall feeling like “*a son against his father*” and “*David against Goliath*” (I felt inferior to my opponent, weak, with no strength, I had hit rock bottom). After performance, she generated entirely new metaphors “*a bottomless pit*,” “*a fruitless tree*”, and “*a bird with no nest*” reporting, “I felt like a person that fights for something and at the end does not get any reward”.

### *Idiosyncratic States and Basic Emotion Categories*

Self-generated words that accompanied metaphors describing athlete’s states in best competitions were similar to three positively toned emotions proposed by Lazarus. Specifically,

happiness (happy, glad), pride (proud, superior), and relief (relaxed) were described by 25 (27.8% of 90), 7 (7.8%) and 2 (2.2%) emotion words, respectively. Such emotions characterized athletes' feelings after performances (72%, 42.9%, and 100%, respectively). Athletes' words were also describing four negatively toned emotions: anxiety (nervous, worried), anger (angry), sadness (sad), and shame (disappointed). Specifically, 7 (7.8%) words described anxiety prior to performances; one (1.1%) described anger during; and two (2.2%) and one (1.1%) described sadness, and shame respectively, however, such feelings were accompanied with happiness.

In worst competitions, three (3.9% of 77) words also described happiness, and relief, and one (1.3%) described pride. Happiness and pride characterized pre-event states (66.7%, and 100%, respectively) and relief, post-event states (100%). Athletes' words were describing shame (14.3%), anxiety (9.1%), anger (5.2%), fright (3.9%), and sadness (2.6%). Anxiety and fright were characteristic of pre-event states, shame and sadness of post-event, and anger, was experienced in both pre- and post-event states.

Content analysis of emotion words generated using individualized emotion profiling revealed similar results. In best competitions, athletes described happiness, pride, relief, anger, and anxiety. In worst competitions, athlete-generated words described sadness, fright, shame, anger, anxiety, relief, happiness, and pride. However, none of the athletes experienced seven of the Lazarus's other basic emotions such as love, hope, compassion, gratitude, envy, jealousy or guilt.

#### *Idiosyncratic States and Non-Emotion Content*

In best competitions, athletes generated 45 (50%) non-emotion labels to describe their states. These interpretative descriptors reflected cognitive (focused, concentrated), motivational (eager, willing), or bodily experiences (strong). In worst competitions, athletes generated 43 (55.8%) non-emotion descriptors of their states including cognitive (unfocused, with negative thoughts), motivational (unmotivated), or bodily experiences (heavy, tired). Athletes also described their

states, generating several idiosyncratic, non-emotion labels, using individualized emotion profiling in best and worst competitions (active, concentrated, willing).

### Discussion

The study replicates and extends previous findings on symbolic representation of feeling states prior to, during, and after best and worst performances. Athlete-generated metaphors were idiosyncratic, holistic, and action oriented, which confirms our first hypothesis. The content of metaphors and descriptors revealed high action readiness in best competitions reflecting action tendencies, strengths, and efficient resources recruitment and utilization (hypothesis 2). In contrast, low readiness for action was characteristic of metaphors in worst performances. Incongruent state-performance relationships were found in best (12%) and worst (12.5%) competitions. These findings support earlier research, indicating that sometimes athletes experience negative feelings, especially prior to their best performances, and positive feelings before poor competitions (Hanin & Syrjä, 1995; Robazza et al., 1998, 2000). In all cases, incongruous effects in state performance relationships seem to be related to the athlete's insufficient awareness or unstructured meta-experiences. This could be due to an under- or over-estimation of the current situation or the recent events leading to competition.

The content of metaphors was different in prior to, during, and after performance situations (content overlap ranged from .06 to .15) and across best and worst competitions (from 0 to .18) (hypothesis 3). This finding provides support for the assumption that performance task involves three psychologically different but functionally interrelated stages: preparation for performance, task-execution, and evaluation of performance. Therefore, the notion of cross-situational variability of personal meaning can be instrumental in future studies of emotion dynamics and temporal patterns in performance related feeling states.

Hypothesis 4 predicted emotion and non-emotion content in performance state. The findings revealed that interpretative descriptors had multiple connotations with six form components of

performance state proposed in the IZOF model (Hanin 1997, 2000). Cognitive and affective connotations were more frequent in best performances, reflecting high action readiness. However, motivational, bodily, kinesthetic, and operational components were more characteristic to describe feeling states in worst competitions. Communicative connotations of metaphoric descriptions were not found and this may reflect the individual nature of karate. According to the fifth hypothesis, a visual representation of the frequencies of interpretative descriptors also provided empirical support for the IZOF-iceberg profile in best performances, showing a predominance of optimal emotions in contrast to the predominance of dysfunctional emotions in worst performances. Thus, results provide additional empirical support for the earlier studies (Hanin 1997, 2000; Hanin et al 2000, 2001; Hanin & Stambulova, 2002).

As an extension of previous studies, a follow up 5 months later, revealed that athletes' perceptions of best and worst performance situations remained stable over time and, therefore, symbolic images of performance states in these most memorable situations remained unchanged. However, in repeated recall, athletes' ability to symbolize and their meta-experiences seemed to develop over time. Athletes' metaphors reflected a new personal meaning and therefore, enhanced meta-experiences of their states. The generation of metaphors also reflected their experiences and the influence of the context (Kövecses, 2001). These findings also emphasize the role the athletes' awareness plays on the stability of emotion content over time. Apparently, athletes with high self-awareness have clearer and more stable emotional patterns (Hanin, 2000). This notion is important for the development of intervention programs. Metaphors might be used to increase athletes' awareness of their emotional experiences and this may facilitate the change or substitution of their ineffective or dysfunctional beliefs or attitudes (meta-experiences) for more effective or optimal experiences.

Interestingly, karate athletes experienced only eight "basic" emotions, revealing a relative mismatch between athletes' idiosyncratic emotions and Lazarus' list of 15 basic categories. These

results suggest a specificity of emotion content in high achievement settings, especially when the emphasis is made on two extreme and qualitatively opposite situations (success and failure). Therefore, Lazarus' list of 15 emotions seems to be a more general and "context-free" list of emotion content that could be experienced in other settings. These findings provide additional support for the notion that the context dimension includes important situational, interpersonal, and intragroup antecedents that determine emotion intensity and content (Hanin 2000). The role of context was also evident when athletes sometimes used similar metaphors with a different meaning in their best or worst competitions.

Another important implication of these context-related descriptions was the specific meaning of anger metaphors in karate. For instance, athletes generated metaphors for anger ("*a lion after its prey*," "*an angry dog*") to describe their states in best and worst competitions. However, in best competitions, negatively toned anger metaphors were usually accompanied by positively-toned descriptors (eager, euphoric). In worst competitions, athlete-generated anger metaphors had only negatively-toned descriptors. Our findings also concur well with previous studies, which revealed that anger, a stress-related emotion, and aggression as its behavioral component, could be helpful or harmful for athletic performance (Hanin & Syrjä, 1995a, b; Robazza et al., 1998).

Interestingly, idiosyncratic emotions, describing athletes' states in best and worst competitions, were not limited to the emotion component. Athlete-generated descriptors had connotations with other (cognitive, motivational, or bodily) form components of a performance state. Therefore, these results provide an empirical support for a recommendation, that future studies should focus on a multimodal description of performance related states (Hanin, 2000).

In this study, metaphor-generation method was combined with individualized emotion profiling to assess athletes' feeling states prior to, during, and after performance. Although some athletes initially experienced some difficulty in the generation of metaphors, given the newness of the task, this did not seem to be a serious limitation. Athletes freely recalled their experiences,

describing a wide range of feeling states, reflecting the holistic nature of this approach.

Additionally, content and intensity of their optimal and dysfunctional emotions was easily identified, using individualized emotion profiling. Therefore, the use of an idiographic approach, based on the athlete's perspective, seems well substantiated in the assessment of individually relevant and task-specific emotion and non-emotion content.

One limitation of the study was that initially generated metaphors were presented to the athletes for their evaluation rather than to replicate the entire metaphor-generation procedure. Future research should address this concern in order to estimate the stability of metaphoric descriptions and athletes' appraisals. Another limitation of this study is related to the use of only recall procedure. Although the accuracy of recall and anticipatory measures of most memorable events, related to athletic performance is well established (Hanin & Syrjä, 1996; Jokela & Hanin, 1999), future studies should also contrast metaphoric descriptions of actual competitions (successful, customary, and unsuccessful) with the images of personally best and worst performances.

### *Practical Implications*

These results provide a descriptive qualitative database and additional support for earlier studies substantiating the recommendations for the use of metaphors in individualized interventions and emotion self-regulation. The holistic characteristic of metaphoric descriptions might be useful in evaluating a wide range of emotions related to performance. For instance, practitioners could identify metaphors for anger, anxiety, fear, and evaluate the functional impact of such emotions on individual performance. Metaphors might be used to identify athletes' beliefs, attitudes, or knowledge about these emotions or their impact on performance. Sport psychologists could use symbolic images as a tool to enhance athletes' awareness of their own experiences and meta-experiences as well as in identifying optimal and non-optimal patterns. Moreover, metaphors might be used to assess other non-emotion components of performance states, such as athlete's thoughts,

expectations of success or failure or motivational states integrating all these aspects in the intervention programs.

Metaphoric descriptions of athletes' states prior to, during, and after performance provide information about the dynamics of athletes' experiences, meta-experiences, appraisal patterns, and coping strategies. Sport psychologists might help athletes monitor and regulate their experiences prior to a competition to enhance performance and to optimize recovery after competition (Hanin, 2000; Hanin & Stambulova, 2002). Moreover, metaphors can be used in mental skills programs enhancing imagery, goal setting skills, and emotional control. Future research should also explore how and in what situations coaches and athletes spontaneously use metaphors to regulate their emotional states in the preparation for performance and during competitions.



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Table 1

*Action-tendencies in Metaphoric Description of Different Competitions*

Action tendencies	Competitions			$\chi^2$
	“Best”	“Worst”	Total	
Position				9.7*
Active	30	16	46	
Passive	13	28	41	
Potential to move				29.2**
High, dynamic, free	44	17	61	
Low, static, limited	24	64	88	
Movements				29.6**
Up, forward, adequate	30	4	34	
Down, away, inadequate	2	16	18	

*Note.* \* $p < .01$

\*\* $p < .001$

Table 2

*Functional Meaning of Metaphors in Different Performance Situations*

Performance situations	Resources recruitment				Resources utilization			
	High	Low	NA	Total	High	Low	NA	Total
Best ever competition								
Prior to	12	3	3	18	11	2	5	18
During	12	0	4	16	11	0	5	16
After	11	2	3	16	7	1	8	16
Worst ever competition								
Prior to	4	12	0	16	4	10	2	16
During	1	15	0	16	1	12	3	16
After	2	13	1	16	2	6	8	16

*Note.* NA – does not apply

Figure captions

*Figure 1*

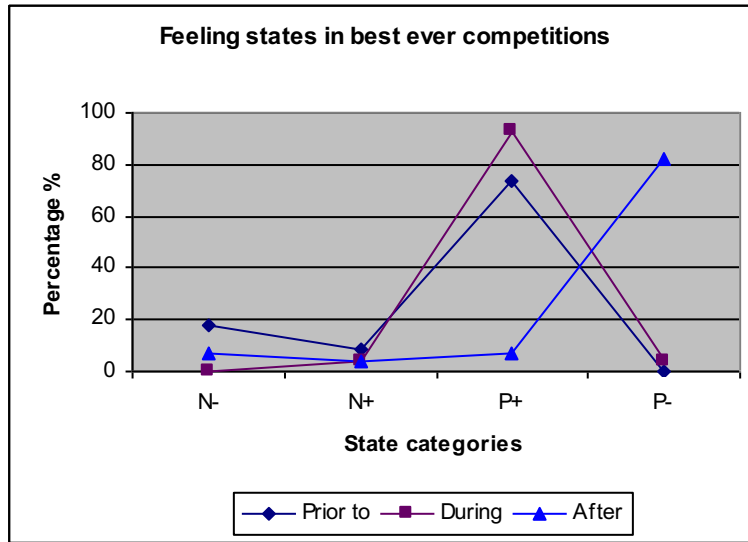
Feeling states prior to, during, and after best ever (A) and worst ever (B) competition

*Note.*

Interpretative state descriptors: N- negative-dysfunctional; N+ negative-optimal; P+ positive-optimal; P- positive-dysfunctional

Figure 1

A



B

