

one's self-esteem, social status and sense of self-importance (Duda, 1989; Roberts et al., 1991; Roberts & Ommundsen, 1994). Thus, similar to Nicholls and colleagues (1985) in the academic realm, these researchers found a conceptually consistent relationship between the goal perspective held by the student and his/her views concerning the purposes of sport. These findings have also been confirmed with samples of British subjects (Duda, Fox, Biddle & Armstrong, 1992; Papaioannou & Macdonald, 1993).

In line with these conceptually consistent relationships, it also seems reasonable to hypothesize that achievement goals are embedded in specific purposes individuals report for taking part in training in that particular sport. Indirect support for such a supposition is given by a study by White & Duda (1994) showing conceptually consistent relationships between dispositional goal perspectives and motives for athletic involvement. To date, however, no study have explicitly examined the role of achievement goals upon perceived purposes for taking part in training in the context of elite sport.

The aim of the present study was twofold. First, to replicate and extend the studies of Nicholls and colleagues (1985), Duda and colleagues (1989, 1992), and Roberts and colleagues (1991; 1994) by investigating the relationship of motivational goals orientations to perceived purposes of training among elite sport participants. Second, we wanted to explore additional kinds of perceived purposes for training that might be related to achievement goals. These included specific items pertaining to taking part in training for sport achievement purposes as well as for purposes concerning promotion of physique and health.

We expected that an ego-orientation would be associated with stronger beliefs in training as a means to become more attractive, and to achieve social status and recognition. Similarly, we expected that a task goal perspective would be associated with stronger beliefs towards the value of training as a source for creating pleasure as well as possibilities for social interaction and for being with friends. We expected that ego oriented individuals would show a higher preference for sport achievement

purposes for participating in training than those task involved. The items pertaining to physique and health promotion were included in order to explore whether achievement with respect to one's physique and health as well, is considered important among top level athletes. Given the exploratory nature of physique & health promotion aspects of training, no particular hypotheses were formulated.

## **Method**

### **Subjects**

Two hundred and thirty male (N=123) and female (N=107) elite athletes representing eight different sports (individual and team) within the Norwegian sport association participated in the study.

### **Assessments**

Several background informations were assessed at the beginning of the mailed questionnaire. The remaining part included assessment of the subjects' achievement goals, perceived purposes of training participation as well as other variables not focused upon in the present study.

**Perceptions of Success Questionnaire (POSQ).** To assess the task and ego orientation in the domain of team sport, a Norwegian version of The Perception of Success Questionnaire (POSQ) was used (Roberts & Ommundsen, 1994). POSQ has been developed as a sport specific measure of ego and task goal perspectives (Roberts & Balague, 1989, 1991). POSQ has been found to be both valid and reliable across various samples when examining motivational goal perspectives in sport (eg: Roberts & Treasure, in press; Roberts, Treasure & Hall, 1994; Roberts & Ommundsen, 1994). When completing the POSQ, the students were asked to think of when they felt most successful in sport and respond to 12 items, 6 reflecting task and 6 reflecting ego referenced criteria. Responses were indicated on a 5-point Likert-type scale (from strongly agree to strongly disagree).

Factor analyses (principal components with both varimax and oblique rotations and a two factor solution specified) were conducted. A two factor solution was deemed satisfactory given that previous studies within norwegian samples (Roberts &

Ommundsen, 1994) have confirmed the expected main two factor solution. Principal component analysis of the POSQ items showed that both factors had eigenvalues > 1.00, accounting for 40,9% of the variance. Both the varimax and the oblique rotation produced very similar factor loadings and inspection of the factor correlation matrix showed that, consistent with previous findings (e.g. Roberts et al., 1993; Roberts & Ommundsen, 1994), the intercorrelation between factor one (ego orientation) and two (task orientation) was low ( $r = .008$ ). This confirmed the orthogonality of the two dimensions. Consequently, the results of the varimax rotation was accepted and used for further computations.

Examination of the orthogonal factor matrix revealed two distinct sets of items conceptually consistent with the original POSQ scale. For all variables included, summed scores were created based on a minimum loading of .40 for inclusion of an item in a factor. The items also had to load unambiguously (the difference between the highest loading and other loadings on any other factor being < 0.15) and reveal interpretability and conceptual clarity. Unambiguous loading secures that factors are interpreted in terms of items that are unique to them. These selection criteria resulted in a 6 item ego orientation scale (Chronbach's  $\alpha = .81$ ) and a 5 item task orientation scale (Chronbach's  $\alpha = .60$ ) for use in this study.

Perceived purposes of participation in training Drawing from a measure of Tangen & Bergsgard (1994), a principal component factor analysis with number of factors not specified was conducted over thirteen items reflecting social status related reasons, social affiliation and pleasure related reasons, sport achievement related reasons and physique and health achievement related reasons for participating in elite sport training. Orthogonal and oblique rotations produced very similar loadings and the interfactor correlations were generally very low. Consequently, the orthogonal rotation results were retained. Thirteen items initially met the criteria for acceptance in the analysis. These items loaded on four factors accounting for 57.1% of the variance with an eigenvalue > 1.00. The four following subscales reflecting different purposes of of participation in elite sport training were utilized in the present study .

1. Social status. This subscale accounted for 19.9% of the variance (eigenvalue=2.78)

and comprised three items (loadings ranging from .81 to .60) reflecting the reasons for participation in training to be: to get higher social status and recognition and a better sense of self (Chronbach's  $\alpha = .69$ ). One item focusing on social/physical attractiveness also loaded on this factor. Due to a high cross loading, it was, however, eliminated from inclusion in the subscale.

**2. Physique & health promotion.** This factor accounted for 14.3% of the variance (eigenvalue=2.00) and consists of three items with loadings ranging from .82 to .63). These items focused on the promotion of physique and health aspects as purposes for being involved in training (Chronbach's  $\alpha = .62$ ).

**3. Social relations.** This factor comprised a subscale accounting for 12.9% of the variance (eigenvalue=1.80) with two items (loadings ranged from .85 to .83). This scale focused on purposes of training pertaining to social aspects: "To be together with friends", "To meet other people" (Chronbach's  $\alpha = .75$ ).

**4. Sport achievement.** This factor accounted for 10% of the variance (eigenvalue=1.40), and consisted of four items (loadings ranging from .69 to .46) pertaining to sport achievement purposes for participation. The items are: "To raise my performance level", "To see how far I can reach" "To win the world championship" (Chronbach's  $\alpha = .55$ ). A fifth item "I derive pleasure from training" also loaded on this factor, but not high enough to be included in the fourth subscale.

## **Results**

The relationships between the goal orientations and perceived purposes of participating in elite sport training were determined. The inter-relationships among the motivational orientations subscales and the subscales of perceived purposes of participation in training is presented in Table 1. Computation of univariate relationships by means of zero-order correlations revealed that social status purposes and a high ego motivational goal was significantly correlated. A task and an ego goal orientation was significantly and equally associated with achievement purposes for participating in training. Moreover, a task oriented achievement goal was related to to social as well as and physique & health promotion purposes.

Table 1. Simple correlations between Task and Ego orientation and the Purposes of Training subscales

	Task orientation	Ego orientation
Social status	.03	.37***
Physique & health	.12*	.10
Social relations	.12*	-.04
Sport achievement	-.24**	.23***

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

The multivariate relationships between the four dimensions of perceived purposes of training with goal orientations was also analyzed by means of canonical correlation analysis. The results of the canonical correlation analysis showing the standardized canonical coefficients for the significant functions are presented in Table 2.

Table 2. Canonical loadings: Goal orientations in elite sports and perceived purposes of participation in training.

	Function 1	Function 2
Goal orientation		
Task	.37	.93
Ego	.96	-.26
Purposes		
Social status	.83	-.46
Physique & Health	.30	.32
Social relations	.00	.55
Sport achievement	.64	.62

As can be seen from Table 2, two significant canonical functions emerged: The first one reflected a high loading (.96) on the ego goal orientation and a modest loading (.37) on the task orientation (Wilks'  $\lambda = .76$ , canonical correlation = .44). In contrast, the second canonical function showed a high loading (.93) on the task goal orientation and a negative loading (-.26) on the ego goal orientation (Wilks'  $\lambda = .94$ , canonical correlation = .24). The canonical coefficients indicate the contributions of the variables to the multivariate relationship between the variable sets.

To be considered significant, dependent variables must load at least .30 on any one

function (Tabachnick & Fidell, 1989). The first canonical function, as shown in table 2, reveals a predominant ego goal orientation. Function 1 was positively related to status as well as sport achievement purposes of taking part in training in elite sport. Function 2, is best represented as the relationship between a clear task goal orientation and purposes for taking part in training such as sport achievement, social relationships and physique & health promotion.

The strength of the relationship between the criteria and the predictor variables can be assessed by means of redundancy analysis. This analysis indicated that the total amount of variance explained by the canonical variables (goal orientations) to the dependent variables was 13,0%.

### **Discussion an Conlusions**

This study focused upon the relationship of the goal orientations with perceived purposes of taking part in elite sport training. Several findings from this study confirms that elite sport athletes have cognitions that correspond to their achievement goal perspectives. A high task orientation was associated with involvement in training for reasons of socializing with friends and other people. Ego involved teamsport athletes, by contrast, strongly endorsed social status purposes for taking part in training.

These conceptually coherent relationships between personal goals and perceived purposes of one's own involvement in elite sport training are in line with the arguments of Nicholls (1989) and Duda (1989) that different personal motivational goals correspond to different perceptions about the purpose of education and sport in general. The present results, however, showing a preference for status reasons for training among ego oriented individuals and preference for socially oriented reasons among task oriented, suggest that motivational goal perspectives even may be influenceing athletes' perception of the personal utility value of sport training. These results are also in accord with a study by White & Duda (1994) showing that motives given for sport participation among athletes corresponded to their dispositional goal perspectives.

Both task involved and ego involved athletes showed a high preference for purposes of training that aimed at promoting their sport achievements. The sport achievement factor contained one clearly social comparison oriented item (i.e. win the world championship), while the rest were not clearly self-referenced or social comparison referenced. The athletes may, therefore, have interpreted these items consistent with their motivational goal perspective.

The results further suggest that physique & health promotion aspects of training is not given a high priority among ego and task oriented elite athletes. Clearly, independent of one's motivational goal perspective, the perceived value of training as a means to enhance one's health, body shape and become more muscular becomes marginal compared to social and achievement oriented aspects of training.

Several of the results the results suggest that the personal utility value of athletic training as perceived by elite athletes is different, dependent of their motivational goal perspective. Ego oriented athletes have a high preference for status and not social aspects of training. The fact that attaining social status may be dependent upon performance, may make ego oriented athletes motivationally vulnerable if their performance is decreasing. Task oriented athletes, by contrast, may be able to sustain their motivation for training in such circumstances, given that they also strongly value the social aspects of the training context.

To conclude, the results are to a great extent compatible with the theoretical notions of Nicholls (1984ab, 1989), Maehr & Braskamp (1986), (Ames, 1984), (Elliott & Dweck, 1988) in the achievement motivation literature, and indicate that the determination of individual differences in achievement goals provides considerable insight into the kind of reasons elite athletes report concerning their participation in training.

**Acknowledgements:** This study was financially supported by the Norwegian Sport Association.

### **References**

- Ames,C (1984) Competitive, cooperative, and individualistic goal structures: A cognitive motivational analysis. In: Ames,R & Ames,C (Eds.), Research on motivation in education: Vol.1. Student motivation. (pp.177-208). NY: Academic Press.
- Ames,C (1987) The enhancement of student motivation. In: Kleiber,D & Maehr,M (Eds.), Advances in motivation and achievement (pp. 123-148). Greenwich: CT: JAI Press.
- Ames,C (1992) The relationship of achievement goals to student motivation in classroom settings. In: Roberts,GC (Ed.) ,Motivation in sport and exercise. (pp. 161-176). Champaign,IL: Human Kinetics.
- Ames,C & Archer,J (1988) Achievement goals in the classroom: Students' learning strategies and motivation processes. J. of Educational Psychology,80, 260-267.
- Burton,D (1989) Winning isn't everything: Examining the impact of performance goals on collegiate swimmers' cognitions and performance. The Sport Psychologist,3, 105-132.
- Duda,JL (1989) Relationship between task and ego orientation and the perceived purpose of sport among high school athletes. J of Sport & exercise psychology, 11, 318-335.
- Duda,J (1992) Motivation in sport settings: A goal perspective approach. In: Roberts,GC (Ed.) ,Motivation in sport and exercise. (pp. 57-92). Champaign,IL: Human Kinetics.
- Duda,J, Fox,K Biddle,S & Armstrong,N (1992) Children's achievement goals and beliefs about success in sport. British J of Educational Psychology,62, 309-319.
- Dweck,C & Leggett,EL (1988) A social-cognitive approach to motivation and personality. Psychological Review,95, 256-273.
- Elliott,ES & Dweck,C (1988) Goals: An approach to motivation and achievement. J of Personality and Social Psychology,54, 5-12.
- Ewing,M (1981) Achievement motivation and sport behavior of males and females. Unpublished doctoral dissertation, University of Illinois, Urbana.
- Hall,H (1990) A social-cognitive approach to goal setting: The mediating effect of achievement goals and perceived ability. Unpublished doctoral dissertation, University of Illinois.
- Jackson,SA & Roberts,GC (1992) Positive performance states among athletes: Toward a conceptual understanding of peak performance. The Sport Psychologist,6, 156-171.



**Lochbaum,MR & Roberts,GC (1993) Goal orientations and perceptions of the sport experience. J of Sport & Exercise Psychology,15, 160-171.**

**Maehr,ML & Braskamp,LA (1986) The motivational factor. A theory of personal investment. Lexington, MA: Lexington Books.**

**Nicholls,JG (1984a) Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. Psychological Review,91, 328-346.**

**Nicholls,JG (1984b) Conceptions of ability and achievement motivation. In: Ames,R & Ames,C (Eds.), Research on motivation in education: Vol.1. Student motivation. (pp.39-73). NY: Academic Press.**

**Nicholls,JG (1989) The competitive ethos and democratic education. Cambridge,MA: Harvard University Press**

**Nicholls,JG, Patashnick,M & Nolen,S (1985) Adolescent's theories of education. J of Educational Psychology,77, 683-692.**

**Nicholls,JG, Cheung,PC, Lauer,J & Patashnick,M (1989) Individual differences in academic motivation: perceived ability, goals, beliefs and values. Learning and Individual Differences,1, 63-84.**

**Papaioannou,A & McDonnald,I (1993) Goal perspectives and purposes of physical education as perceived by greek adolescents. Physical Education Review,16(1), 41-48.**

**Roberts,GC & Balague,G (1989) The development of a social-cognitive scale of motivation. Paper presented at the Seventh World Congress of Sport Psychology. Singapore.**

**Roberts,GC & Balague,G (1991) The development and validation of the perception of success questionnaire. Paper presented at the FEPSAC Congress. Cologne Germany.**

**Roberts,GC & Treasure,D (in press) Achievement goals, motivational climate, and achievement strategies and behaviors in sport. International J of Sport Psychology.**

**Roberts,GC, Treasure,D, Hall,H (1994) Parental goal orientations and beliefs about the competitive sport experience of their child. J of Social Psychology, 24, 631-645.**

**Roberts,GC, Hall,HK, Jackson,S Kimiecik,JC & Tonyon,P (1993) Implicit theories of achievement and the sport experience: Goal perspectives and achievement strategies. Unpublished manuscript. University of Illinois.**

**Roberts,GC & Ommundsen,Y (1994) Effect of goal orientations on achievement beliefs, cognitions and strategies in team sport. Scandinavian J of Medicine & Science in Sport (submitted).**

- Seifriz, JJ, Duda, JL & Chi, L (1992) The relationship of perceived motivational climate to intrinsic motivation and beliefs about success in basketball. *J of Sport & Exercise Psychology*, 14, 375-391.
- Solomon, MA & Boone, J (1993) The impact of student goal orientation in physical education classes. *Research Quarterly for Exercise & Sport*, 64, 418-424.
- Treasure, DC & Roberts, GC (1994) Cognitive and affective concomitants of task and ego goal orientations during the middle school years. *J of Sport & Exercise Psychology*, 16, 15-28.
- Tangen, JO & Bergsgard, NA (1994) "To dope or not to dope". En kartlegging av dopingmisbruk i et idrettsmiljø. Rapport nr. 80. Bø: Telemarksforskning. (in norwegian).
- Vealey, R (1986) Vealey, R (1986) Conceptualization of sport-confidence and competitive orientation: Preliminary investigation and instrument development. *J of sport Psychology*, 8, 221-246.
- Walling, MD, Duda, JL & Chi, L (1993) The perceived motivational climate in sport questionnaire: Construct and predictive validity. *J of Sport & Exercise Psychology*, 15, 172-183.
- White, S & Duda, J (1994) The relationship of gender, level of sport involvement, and participation motivation to task and ego orientation. *International J of Sport Psychology*, 25, 4-18.

## COMPETING AT THE OLYMPICS: ACHIEVEMENT GOAL ORIENTATIONS AND COPING WITH STRESS

Anne Marte Pensgaard, Norwegian University of Sport and Physical Education, Oslo, Norway  
and Glyn C. Roberts, University of Illinois, USA.

The Olympic Games in Lillehammer 1994 were challenging events for Norwegian winter sport elite athletes. Impressive results in the last Olympics and World Championships had led to high expectations for the up-coming events with the athletes feeling pressure to excel. In Norway, winter sports have long traditions and are very popular and subject to intense media attention. There is a great pressure on athletes to achieve. How athletes cope with this stress, in addition to the stress of competing at elite levels, is an important question to address. However, some evidence exists which reveals that the achievement goals of the athletes may mediate perception of stress (Vealey & Campbell, 1988). Athletes who have internal criteria of determining success may be better equipped psychologically to cope with the stress, while athletes who have external criteria of success, such as others competitors, may be especially vulnerable to perceive stress and suffer performance decrements. Thus, it is important to determine not only the coping strategies elite athletes use to deal with stress, but we also need to understand the interdependence between the achievement goal perspective of the athlete and the manner of coping with stress. Therefore, the purpose of this study is to determine the achievement goal orientations of the athletes and the relationship of achievement goals to the coping strategies employed.

### Achievement Goals of Athletes

Within a social cognitive perspective, the determinants of achievement goals and the relationship to achievement behaviors has been successfully employed in both the academic (Nicholls, 1989, 1992) and the sport contexts (Roberts, 1984, 1992; Duda, 1992).

Achievement goal theory proposes that there are two predominant goals or bases of subjective success in achievement situations, namely task and ego orientation (Nicholls, 1989).

According to Nicholls these two goal orientations are orthogonal, which means you can be high or low in both. When an athlete is in a state of task oriented, perceptions of ability are self-referenced, there is an interest in learning and his/her own development, and the focus is on the task with little concern with the outcome. In ego orientation, emphasis is placed on demonstrating superior ability to others where perceived ability is norm referenced. Winning and beating others is of major importance for an ego oriented person. Contemporary research has revealed that important relationships between goal orientations and achievement cognitions and behavior exists (e.g. Duda, 1992; Roberts, 1992).

Although research on goal perspective theory has typically involved children and young adolescents, it has successfully been utilized in studies involving adults elite athletes (Burton, 1989; Duda & White, 1992). Duda and White revealed that task oriented elite skiers were more likely to believe that skiing success is a result of hard work, superior ability, and selecting activities that one can perform successfully. Ego oriented athletes had a tendency to believe that successful skiing is a result of taking an illegal advantage, selecting tasks that one can accomplish, and external variables. One interesting finding in this study is that high-level skiers who scored high in task orientation also reported that ability (and the selection of challenges that can be performed successfully) is related to achievement in sport. Duda and White suggest that given that the subjects in this study were accomplished performers, it seems realistic to perceive that one must be physically competent, and perhaps, strategically competent in terms of challenge selection. One must also be willing to put in the effort if one has any hope of being successful at this level of sport competition. Further, Jackson and Roberts (1992) found that task oriented individuals are more likely to experience positive performance states, such as peak performance, than ego oriented individuals. Thus, there seems to be emerging support for the fact that a high task orientation is desirable for older athletes and elite athletes. This might be contrary to the beliefs of many coaches because it has been assumed that to become an elite athlete you have to be extremely competitive and ego oriented. Also, both Roberts (1984) and Duda (1993) have suggested a possible relationship between goals and stress responses in sports and Lewthwait (e.g. 1990) found that a focus on ego oriented goals is related to higher levels of anxiety in the athletic setting. Thus, the achievement goal of the athlete has implications for the perception of stress.

### Coping Strategies and Sport Competition

Competing on a high level involves many potential sources of stress. Scanlan, Stein and Ravizza (1991) found four major sources of stress in a qualitative study of former elite figure skaters, namely; **negative aspects of competition** (worries about competition, feeling unprepared, perceiving inordinate importance of the outcome), **negative significant-other relationships** (not getting along with others, failing to meet others expectations, receiving criticism from others), **demands or costs of the sport** (financial demands, time demands on the behalf of the family, personal costs), and **traumatic experiences** (having a eating disorder problem, self-doubts about talent, perfectionism, having significant others die). They also found individual differences among elite athletes' sources of stress. The degree of how well the athlete manages to cope with the different sources of stress will, of course, have an impact on performance. Coping with stress is an important element in effective functioning in elite sports.

Gould, Eklund and Jackson (1993) investigated participants on the US Olympic wrestling team in Seoul in 1988 and found that athletes employed a variety of coping strategies to cope with the stress of competing at an elite level. The qualitative analysis revealed coping strategies including: a) **thought control strategies** (blocking distractions, perspective taking, positive thinking, coping thoughts, and prayer), b) **task focus strategies** (narrow, more immediate focus, concentrating on goals), c) **behavioural based strategies** (changing or controlling the environment, following a set of routine) and d) **emotional control strategies** (arousal control, visualisation). Gould, Eklund and Jackson (1993) also reported that the wrestlers were not limited to particular strategies nor to single approaches in dealing with a particular stressor, but rather, reflected a dynamic, complex process involving a number of strategies often used in combination. When comparing medalists and nonmedalists, they found that the salient difference in ability to cope with adversity appeared to lay in the extent to which the individuals strategies were well practised and internalised. Defining success by medal acquisition is one way of determining successful athletes less successful athletes, which may seem intuitively plausible. But this way of defining success has proved to be problematic in the past. A critical variable to control is the athletes' own perception of success: A fifth place may be perceived as success by one athlete, but as a total failure by another, depending on the expectations they (and others) had before the competition. Also, when dealing with Olympic Athletes, we have a highly successful group of athletes regardless of their Olympic results: Getting to the Olympics is a success! Thus, the aim of this study was to investigate the relationship between goal orientations (measured as the athletes perceptions of success), on the perception and use of coping strategies at the last winter Olympics (1994).

## METHODS AND PROCEDURE

**Subjects.** This study used 70 elite athletes (50 male and 20 female, mean age = 25,3) who were Norwegian participants at the recent Olympic Games (response rate =75%).

**Measures.** In order to determine the achievement goals of the athletes, we used the Perception of Success Questionnaire (POSQ) (Roberts & Balague, 1991). The scale contains 12 items measuring ego and task orientation, and responses were indicated on 5-point Likert-type scales (1=strongly agree, 5 = strongly disagree). The scale has been translated to Norwegian and has acceptable psychometric properties (see Roberts & Ommundsen, in press).

In order to determine the coping strategies which were employed, we used the COPE inventory (Carver, Scheier & Weintraub, 1989). The COPE contains five scales to measure distinct aspects of problem-focused coping, five scales of emotion-focused coping and three behavior-focused scales. Each scale consists of four items, and each item is scored on a 4-

point scale. The scales have acceptable psychometric properties (Carver, Scheier & Weintraub, 1989).

Procedures. The athletes received the questionnaires, along with a recommendation letter from the Norwegian Olympic Committee, two months after the Olympic Games in Lillehammer. Subjects were asked to relate their answers to the recent winter Olympics. Responses were anonymous.

In order to determine the relative effect of task and ego orientation, athletes were placed into one of four groups based upon the POSQ scores. A median split (task  $Md=4,6$  and ego  $Md=3,8$ ) was used to decide the groups: high task, high ego ( $n=18$ ); high task, low ego ( $n=17$ ); Low task, high ego ( $n=23$ ); and low task, low ego ( $n=12$ ).

Analysis. Due to the small sample size available, conventional factor analysis could not be used to verify the factor structure of the COPE inventory. An alternative procedure recommended by Comrey (1988) was used. Only scales which had a Cronbach alpha  $> .65$  were included in the study.

## RESULTS

One way ANOVA analyses revealed that high task, low ego group were the athletes who employed the more problem solving strategies ( $p=0.02$ ) than the three other groups. The low task, high ego group used more positive reinterpretation and restraint coping strategies than the high/high and low/low groups ( $p=0.02$ ).

Table 1. Mean scores on the COPE scale of the four achievement groups

COPE scales	high task high ego (n=18)	high task low ego (n=17)	low task high ego (n=23)	low task low ego (n=12)	P
Active coping	9,5	12,3	10,2	8,8	.36
Planning	9,8 <sub>a</sub>	11,0* <sub>b</sub>	9,5 <sub>a</sub>	9,0 <sub>a</sub>	.02
Support instrumental	7,4	8,8	8,7	7,8	.61
Support emotional	7,5	10,1	9,8	8,4	.09
Suppression of competing activities	9,1	8,3	8,2	6,7	.21
Positive reinterpretation & growth	9,6 <sub>a</sub>	10,7 <sub>ab</sub>	12,2* <sub>b</sub>	10,0 <sub>a</sub>	.02
Suppression of acting	6,7	7,2	8,1	6,0	.07
Acceptance	9,6	9,3	10,7	9,6	.51
Focus on & venting of emotions	6,7	6,3	6,5	6,2	.93
Denial	5,2	5,6	5,5	5,0	.90
Behavioral disengagement	5,1	5,1	4,6	4,2	.54

\*P=0.02

Series sharing the same subscript were not reliably significant.

## DISCUSSION

The social cognitive theory of achievement goal orientations (Nicholls, 1989) has demonstrated conceptually pertinent relationship between task and ego oriented goals and achievement cognitions and strategies in sport (e.g. Duda & White, 1992; Lochbaum & Roberts, 1993). This study specifically targeted stress coping strategies, and predicted that task and ego orientations would interact with coping strategies in a conceptually meaningful way. Most previous literature has investigated the two goal orientations in isolation to each other, but an important element of achievement goal theory is that the two achievements goals are orthogonal. Therefore, the relative strength of the two goal orientations should affect use of coping with stress strategies. We would expect task oriented athletes to be more internal and self referenced, thus protecting themselves for stress somewhat.

As predicted, the high task/low ego group did employ more problem focused strategies. The *planning* dimension involves coming up with action strategies and thinking about steps to take to best handle the problem. Moreover, it occurs during what Lazarus and Folkman (1984) labels *secondary appraisal*, meaning the process of bringing to mind a potential response to

the threat. A task oriented athlete is self referenced and not so concerned with comparing performance with other athletes. In a highly competitive situation, the other competitors are a major potential source of stress (Scanlan, Stein & Ravizza, 1991), thus high self reference is preferable. The ego oriented athletes, on the other hand, are more subject to experience stress with its attendant performance affecting properties.

This is confirmed, to some extent, by the fact that the low task/high ego group employed more emotion focused strategies. It may be argued that those people experience increased arousal through using social comparative and norm based criteria. Thus, they are likely to use emotion reducing strategies. This is the focus in future research.

Although most stressors elicit both problem-focused and emotion-focused coping, problem-focused coping tends to predominate when people feel that something constructive can be done, while emotion-focused coping tends to prevail when people feel that the stressor is something that must be endured (Carver, Scheier & Weintraub, 1989). The *positive reinterpretation and growth* dimension is regarded as a type of emotion-focused coping aimed at managing distress emotions rather than dealing with the stressor per se. Carver and colleagues however suggest, that when construing a stressful transaction in positive terms this should lead the person to more problem-focused actions.

In conclusion, the achievement goal perspective of the athletes did show a conceptually meaningful relationship of the use of coping strategies



## REFERENCES

- Carver, C.S., Scheier, M.F. & Weintraub, J.K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social psychology*, 56, 2, 267-283.
- Comrey, A.L. (1988). Factor-analytic methods of scale development in personality and clinical psychology. *Journal of Consulting and Clinical Psychology*, 56, 754-761.
- Duda, J.L. (1992). Motivation in sport settings: A goalperspective approach. In G.C. Roberts (ed.), *Motivation in Sport and Exercise*, Champaign, IL: Human Kinetics, pp 57-93.
- Duda, J.L. & White, S.A. (1992). Goal orientations and beliefs about the causes of sport success among elite skiers. *The Sport Psychologist*, 6, 334-343.
- Folkman, S and Lazarus, R.S. (1980). An analysis of coping in a middleaged community sample. *Journal of Health and Soicial Behavior*, 21, 219-239.
- Gould, D., Eklund, R.C. & Jackson, S.A. (1993). Coping strategies used by U.S. Olympic Wrestelers. *Research Quarterly for Exercise and Sport*, 64, 1, 83-93.
- Gould, D., Finch, L.M. & Jackson, S.A. (1993), Coping strategies used by national champion figure skaters. *Research Quarterly for Exercise and Sport*, 64, 4, 453-468.
- Lazarus, R.S. and Folkman, S. (1984). *Stress, appraisal and coping*. New Yotk: Springer.
- Lewthwaite, R. (1990). Threat perception in competitive trait anxiety: The endangerment of important goals. *Journal of Sport & Exercise Psychology*, 12, 280-300.
- Lochbaum, M.R. and Roberts, G.C. (1993). Goal orientations and perceptions of the sport experience. *Journal of Sport and Exercise Psychology*, 15, 160-171.
- Nicholls, J.G. (1989). *The competitive ethos and democratic education*. Cambridge, MA: Harvard University Press.
- Nicholls, J.G. (1992). The general and specific in the development and expression of achievement motivation. In G.C. Roberts (ed.), *Motivation in Sport and Exercise*, Champaign, IL: Human Kinetics, pp 31-56.
- Roberts, G.C. (1984). The perception of stress: A potential source and its development. M.R. Weiss & D. Gould (eds.), *Sport for Children andYouth, Olympic Scientific Congress, Vol,10*.

Roberts, G.C. and Balague, G. (1991, september). *The development and validation of the Perception of Success Questionnaire*. Paper presented at the FEPSAC Congress, Cologne, Germany.

Roberts, G.C. and Ommundsen, Y. (in Press). Effect of goal orientation on achievement beliefs, cognitions and strategies in team sport.

Scanlan, T.K., Stein, G.L. & Ravizza, K. (1991). An in-depth study of former elite figure skaters: III. Sources of stress. *Journal of Sport & Exercise psychology*, 13, 103-120.

Vealey, R.S. and Campbell (1988). Achievement goals of adolescent figure skaters: Impact on self confidence, anxiety and performance. *Journal of Adolescence Research*, 3, 227-253.

**THE BASIC DETERMINANTS IN OPTIMAL TASK ORIENTATION**

**Dr BJM Steyn, Dept of Human Movement Sciences, University of Pretoria, Pretoria, Republic of South Africa**

**KEY WORDS**

Centeredness, self-transcendence, task desire (attraction).

**INTRODUCTION**

Psychological health and wellness, motivation and the search for the golden keys to unlock human potential were three of the main themes receiving a lot of interest during the 8th World Congress in Sport Psychology. This research is an effort to determine the fundamental prerequisites (basic determinants) for optimal task orientation in sport. The search is for the core elements that constitutes a peak performance in sport. From the research a model of the fundamental prerequisites or determinants for task orientation emerged. Three determinants were identified as the basis for effective task orientation, namely: centeredness, self-transcendence and task attraction (desire). In the empirical and literature research it became clear that this basic determinants in sport do not stand separately, but are interrelated and interdependant in such a way that the determinants manifested itself as a trinitarian unity which can be find at the centre of peak performances. This research is of exploratory nature and do not pretend to be exhaustive.

**METHOD AND PROCEDURE**

Relevant sport psychological literature and literature from the mainstream Psychology as well as philosophical works were studied because of the underdeveloped status of the mentioned phenomena in Sport Psychology itself. The phenomena of peak- and flow experiences were also studied in search for answers relating to the concepts of centeredness, self-transcendence and attraction in optimal task states. The empirical data was obtained from

interviews flowing from three separate research projects. The total number of thirty interviews were incorporated in this study (Steyn, 1991). In all three studies the interview data was analysed using the method developed by Wertz (1985). Following an integrated methodological approach, the empirical findings were supplemented, verified and substantiated with relevant literature.

## RESULTS

### Defining and the essential description of the basic determinants

According to Nideffer (1989; 1992), three important concepts form the basis of the centering technique namely centeredness, centering as a process and technique and centre of gravity. Centeredness can be described as a condition of total psychophysical balance and readiness. The physical experiences of looseness, relaxation, solidness, balance, power, lightness, energy, absence of strain, fluency, smoothness of motion, as well as the psychological experiences of control, self-assurance, powerfulness, calmness, evenness, tranquility, easiness and clarity of attention focus are all indications of a participant's level of centeredness. Nideffer's assumptions regarding centeredness in sport participants are supported by the work of McCluggage (1983), Swift (1985) and Belasik (1990). Centering is a purposeful technique to reach a condition of centeredness. The research findings of this study support the existing theories, concepts and definitions of centeredness and the technique of centering. As a result of this qualitative study the need arised to supplement the existing concepts of centeredness with the principle of attraction and the importance of the participant as unique being. While exploring the interview data, it became clear that centeredness, the uniqueness of the participant and the principle of attraction are interlinked. Taking the well founded philosophical works of Versfeld (1975; 1985; 1990; 1991) into account, the following logical exploratory statement can be made: True centeredness can only be achieved if the participant is

centered in the core of his own uniqueness (peculiarities) and if the principle of attraction is a core function of this true centered state. To be centered in one's uniqueness means to accept one's unique characteristics and to find pleasure in one's being. What one is, is good enough for oneself (Perls, 1974; Versfeld, 1975). Uniqueness and perfection are inseparable (Versfeld, 1991). The above statement implies that the perfect moments during a peak performance in fact also mean that the participant is totally centered in his uniqueness during those moments. The empirical data obtained from the interviews, supported just that. This subsequently implies that the participant should practise his uniqueness in such a way as to become even more unique. In this state of centeredness, the uniqueness of his opponent will have no effect on his own performance. St Augustine sees his unique non-comparable centeredness as a total centeredness in the image of the Creator (Versfeld, 1990).

### Self-transcendence

Self-transcendence refers to the art to forget yourself, surpass yourself and go beyond oneself and become fully task involved. The original roots of self-transcendence are found in the Latin word "transcendere" meaning "surmount; trans - across, beyond, on the other side of + scandere - climb: to rise above in excellence of degree; to overstep or exceed a limit; opposite of immanence. Existential philosophers emphasize the fact that man (existence) is able to transcend on account of his intentionality" (Van Rensburg et al, 1979). In a more paraphrased way, transcendence can be described as a getting out of oneself (here) to the other side (there), surpassing oneself or rather leaving oneself behind and to go beyond. Frankl developed the concept of transcendence in a simplistic way (Frankl, 1980). According to him the essence of transcendence is to forget oneself and to be able to grow from oneself towards something or someone out there that does not implicate self-consciousness anymore (Frankl, 1980). Van den Berg took the liberty to

reinterpret the classic dimensions of Sartre's rock climber (Van den Berg, 1950). With the Dutch words "**slaat zijn lichaam over, zijn lichaam vergeet, depassering**", Van den Berg catches the essence of transcendence (Van den Berg, 1950:403). The German words of "**aus-sich-gang, her-vor-gang**" also confirms the meaning of getting out of oneself, surpassing oneself, leaving oneself behind and to go beyond. More relevant to the field of Sport Psychology, the peak- and flow experiences of Maslow and Csikszentmihalyi is in line with the central meaning of transcendence (Maslow, 1968; Csikszentmihalyi, 1975). The "**staying out of your head**" experiences of Nideffer (1992:40) and the "**On having no head**" from Harding (1986) also synchronize with the essential meaning of transcendence that is described in this article.

### Attraction

Task attraction refers to the desire, love and care that the participant have of the sport task. The principle of attraction shows similarities with the principle of identification as formulated by the Gestalt Therapy (Perls et al, 1980; Perls, 1974). According to Perls the concept of "identification" encompasses everything within the boundaries of the ego (which is to be find as a borderline) that includes cohesion, love, attraction and co-operation. Outside this boundary everything is experience as alienated, antagonistic and opposing. Alienation implies feelings of suspicion, strangeness, unfamiliarity, wrongness and repulsiveness (Perls, 1974). Identification implies pure contact with the task at hand in such a way that all boundaries (in this case the ego boundary) are opened to merge and unify with all the elements of the task.

Other established concepts in the literature that showed similarities with the principle of attraction are **desire** and **to be drawn** as used by McCluggage (1983) and Versfeld (1990) as well as the **enjoyment** of the task. Some sport psychologists see desire as the most powerful force in human endeavor, motivation and

efficiency. There are also sport psychologists that view attraction as one of the main characteristics of concentration.

In essence, attraction implies that a participation must be able to attract, and merge with his own body, the applicable sporting technique, the environment, the equipment, opponents and spectators in such a way that he will succeed in forgetting the mentioned aspects as well as himself and concentrate fully on the sporting task at hand.

**Trinitarian, interrelatedness of centeredness, self-transcendence and attraction**

**Bodiliness** A centered relationship with the body implies that the participant will identify and attract his body to such a point that all consciousness of the body per se, disappears. This total becoming and merging with the body leads to a prereflective intimacy with the body that enables the participant to transcend it completely. Metaphorically speaking the body that is transcended functions in the same manner as the eye that sees but can not see itself. If the eye sees himself (consciousness of itself) then pathology is indicated in the eye itself. A healthy eye can not see itself. The centered relationship with the body implies a being and lived mode of the body that is so close that it can be transcended completely.

**The movement technique** Before the participant will be able to transcend the movement technique, the participant has to ascertain that the movement technique is on an automatic and second nature level. All movement techniques must be executed without conscious interference. In essence a centered relationship with the movement technique implies that the participant becomes the movement itself. He must also be attracted to the movement in such a way that the kinesthetic enjoyment of the movement draws the participant's attention in a constructive and relevant fashion. To achieve this automatic and spontaneous level of body logic, the participant must be

properly trained in appropriate drills to be able to "groove" the technique up to a level of becoming where the participant will be able to transcend it (Van Zyl, 1987). In such a centered transcendence relation with the movement technique the focus of attention will not be blocked by conscious focusing on the technique itself.

**The sporting equipment and environment** A centered-transcendence relationship with the sporting equipment and environment implies that the participant must be able to attract and merge with the equipment in such a way that he will succeed in transcending the specific sporting equipment and environment. In all three research projects significant evidence and support for the phenomena of merging and co-existence with implements and surroundings were found (Steyn, 1991; Visagie, 1993).

The following quote by Alapack supports the findings: "The point at which his body ends and his glove or bat begins is impossible to pinpoint. The tools of his trade are natural extensions of his body. He wields them and steers them just as he does his own body" (Alapack, 1972:213).

**The opponent** The same principle of centered-transcendence also applies to the participant's relation with the opponent. The opponent can be a constructive, facilitating force in competition or it can be a destructive force filled with hostility and antagonism destroying all centered-transcendence relationships of the participant. During psychological sabotage, the unity (that consist of all the centered-transcendence relationships) are dismantled up to the point of total disintegration. A very important factor that is at the essence of centeredness is the fact that centered-transcendence will not be achieved if the uniqueness of the participant is not accepted and developed to its fullness. The uniqueness with all the peculiar splendor of the participant must be developed up to the point where no otherness (opponent) has any hold on him anymore (Versfeld, 1975; 1990; 1991).



**The spectator** Spectators must be seen as supportive and friendly and not as enemies that evoke feelings of opposition and antagonism. If the spectators are perceived as critics all efforts to establish a centered-transcendence relationship with them, will be obstructed. Subject 1 experienced the wonderful feeling of belonging, wantedness and support from the spectators which included his mother, wife, brother, press and judges. "The support I felt from my mother, wife, my brother and even the press and judges were tremendous. It was a strong motivation for me to do my best. But I also had moments where spectators had disapproved of me in their hostile look".

#### CONCLUSION

Sport Psychology is still in search for more golden keys to facilitate states of optimal task orientation as well as human potential in general. Centeredness and self-transcendence appear to be fundamental prerequisites for effective task orientation in sport. The next step will be to test the validity of the exploratory model that was developed in this article with rigorous quantitative research. If the general validity of this model can be proved, it could have a radical impact on the psychological preparation of sport participants. This research also has the ability to open new perspectives on the Sport Psychology. Only time will learn.

#### REFERENCES

- Alapack, R.J. (1972). *The Phenomenology of the Natural Athlete*. Unpublished doctoral dissertation. Pittsburgh: Duquesne University Press.
- Belasik, P. (1990). *Riding towards the light*. London: JA Allen.
- Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety*. San Francisco: Jossey-Bass Publishers.
- Frankl, V.E. (1980). *Sê ja vir die lewe*. Uit Duits vertaal deur Ferdinand Deist. Kaapstad: Tafelberg Uitgewers.
- Harding, D.E. (1986). *On having no head*. New York: Arkana.

- Maslow, A.H. (1968). Toward a Psychology of Being. New York: D Von Nostrand Company.
- McCluggage, D. (1983). The centered skier. Toronto: Bantam Books.
- Nideffer, R.M. (1989). Attention Control Training (ACT) for athletes. Oakland: Enhanced Performance Services.
- Nideffer, R.M. (1992). Psyched to win. Champaign, Illinois: Leisure Press.
- Perls, F.S. (1974). Gestalt Therapy Verbatim. New York: Bantam Books.
- Perls, F.S., Hefferline, P.F., & Goodman, P. (1980). Gestalt Therapy. New York: Bantam Books.
- Steyn, B.J.M. (1991). Sentrerings as voorwaarde vir taakgerigtheid in sport. 'n Ongepubliseerde D Phil Proefskrif. Pretoria: Universiteit van Pretoria.
- Swift, S. (1985). Centered Riding. London: Heinemann.
- Van den Berg, J.H. (1950). Menselijk Lichaam, Menselijke Beweging. Nederlandsche Tijdschrift voor Psychologie, 5:401-429.
- Van Rensburg, C.J.J., Kilian, C.J.G., & Landman, W.A. (1979). Fundamenteel-Pedagogiese Begripsverklaring - 'n Inleidende oriëntering. Pretoria: NG Kerkboekhandel.
- Van Zyl, D. (1987). Die Dinamika van wen. SAMKOR Simposium. Die Primêre skoolkind en sy sport. Aangebied deur die Sportinstituut. Pretoria: Universiteit van Pretoria.
- Versfeld, M. (1975). Klip en Klei. Kaapstad: Human en Rousseau.
- Versfeld, M. (1985). Pots and Poetry. Cape Town: Tafelberg Publishers.
- Versfeld, M. (1990). St Augustine's Confessions and City of God. Cape Town: The Carrefour Press.
- Versfeld, M. (1991). Sum. Cape Town: The Carrefour Press.
- Visagie, D. (1993). Nabyheids- en afstandsbewing in sport. 'n Ongepubliseerde MA-Verhandeling. Pretoria: Universiteit van Pretoria.
- Wertz, F.J. (1985). Method of findings in a Phenomenological Psychology Study of a Complex Life-event: Being Criminally Victimized. In A Gorgi (ed.), Phenomenology and Psychological Research (149-214). Pittsburgh Pa: Duquesne University Press.

## **EGO AND TASK ORIENTATION AND THE PURPOSE OF SPORT: A CROSS CULTURAL STUDY**

**Dr BJM Steyn, Dr AE Goslin & Mrs A Lourens, Dept of Human Movement Sciences and Dept of Statistics, University of Pretoria, Pretoria, Republic of South Africa**

### **KEY WORDS**

Task and ego orientation, purpose of sport, entrepreneurial orientation, trans-cultural.

### **INTRODUCTION**

The main focus of the research findings presented in this article is in alignment with the ego and task orientation and goal perspective theory of meaning and motivation in sport recently developed by Duda (Duda, 1989; 1993a, 1993b). The research primarily aims to investigate ego and task orientation as well as perceptions on the purpose of sport of under graduate students in the Human Movement Sciences. Focused goals of the study are to determine the trans-cultural integrating value of sport on a national and international level to evaluate broad cultural, social and educational perceptions on sport; to identify correlations between task orientation, ego orientation, purpose of sport variables and entrepreneurial variables.

The findings could contribute to a fuller understanding and utilization of sport as a potential social integrator, educator and stabilizer.

### **METHOD AND PROCEDURE**

Data was collected by a questionnaire with standardized questions on:

- Purpose of sport variables (Duda, 1989);
- Ego and task orientation (Duda, 1989);
- Entrepreneurial variables (Hisrich & Peters, 1989; Levenson,

1974). Purpose of sport variables measured are: mastery/cooperation, physically active lifestyle, good citizen, competitiveness, high status career, enhance self-esteem, social status/getting ahead. Chell et al., (1991) showed the centrality of three entrepreneurial characteristics that could be labelled as entrepreneurial variables. In accordance with the above finding, entrepreneurial variables measured in this study are propensity to take risks (high willingness or low willingness); locus of control (control of powerful others, individual control and chance control) and independence (high feelings or low feelings).

Respondents (n=520) represent the total population of under graduate students in Human Movement Sciences in the Nanyang Technological University Singapore (n=169); the University of the Orange Free State, South Africa (n=106); the University of Botswana (n=37); the University of the North, South Africa (n=163) and the University of Namibia (n=45). The sample of universities represented the generic categories of an Eastern Culture, the Western Culture and the African Culture.

Students in the Human Movement Sciences were selected as respondents being broad representatives of sport participants, potential sport and social facilitators as well as sport educators, managers and leaders. It was assumed that the respondents would be to a great extent future active role players and decision makers in sport. Individual and national perceptions on the purpose of sport and task and ego orientation could therefore serve as a filter and reference system for future decision making.

The following hypotheses were set for the study:

1. If sport wants to be a trans-cultural integrator, sufficient common ground on the purpose of sport should exist in different cultures.
2. If sufficient common ground on the purpose of sport does not

exist between cultures, sport will not fulfil the role of a social integrator.

3. A positive correlation exists between high levels of task orientation, mastery/cooperation, physically active lifestyle, good citizen, high willingness to take risks, high feelings on independence and an individual locus of control.

4. A positive correlation exists between high levels of ego orientation, competitiveness, high status career, enhance self-esteem, social status/getting ahead, low willingness to take risks, low feelings of independence, locus of control by powerful others and locus of control by chance.

5. Trans-cultural differences exist in the entrepreneurial orientation of under graduate students in the Human Movement Sciences.

Data were analysed by descriptive statistics. Spearman's correlation coefficient to determine relationships between the appropriate variables, was applied. The **p-value** is the probability that the test statistic under the null hypothesis ( $H_0$ ) is equal to the observed value of the test statistic, or is more extreme in the direction suggested by the alternative. It is also known as the **exceedance probability**. If  $p \leq 0.05$  the null hypothesis ( $H_0$ ) will be rejected and the variables of concern will be significantly different.

In order to determine the differences in variables between universities, the mean values of all the listed variables were compared. If significant differences were to be found then further sophisticated statistical inferences would be made. Because no differences in mean values could be found, this step was not necessary.

## RESULTS

A descriptive statistical analysis of the respondents (n=520) indicated mean scores of 30 (maximum value = 35) and 19,2 (maximum value = 30) for task orientation and ego orientation respectively.

A comparison of the mean scores for the measured variables, indicated no significant difference between respondents of different universities or culture groups. On the contrary, astonishing similarities became obvious from the mean scores. Results of the correlation analysis are shown in Table 1.

**TABLE 1. Correlation analysis on task and ego orientation in sport. (n=520) ( $R^2$  = Spearman's coefficient of determination; P = exceedance probability; \* = significant correlation)**

	TASK ( $R^2$ ) p	EGO ( $R^2$ ) p
Mastery/Cooperation	0.18839 0.0001 *	0.006294 0.0709
Physically Active Life Style	0.12985 0.0001 *	0.00792 0.0428 *
Good Citizen	0.0708 0.0001 *	0.013778 0.0074 *
Competitiveness	0.0103 0.0206 *	0.078086 0.0001 *
High Status Career	0.0064 0.0686	0.042094 0.0001 *
Enhance Self-Esteem	0.0687 0.0001 *	0.071465 0.0001 *
Social Status/Getting Ahead	0.002146 0.2921	0.045177 0.0001 *
High willingness to take risks	0.01917671 0.0016 *	0.000373262 0.6606
Low willingness to take risks	0.00210 0.2971	0.023546 0.0005 *

	TASK	EGO
Feelings of high independence	0.014614392 0.0058 *	0.0000249 0.9097
Feelings of low independence	0.000112996 0.8091	0.013792 0.0074 *
Locus of control by powerful others	0.004256 0.1377	0.036366 0.0001 *
Locus of control by chance control	0.000269 0.7090	0.0295 0.0001 *
Individual locus of control	0.05959 0.0001 *	0.03739 0.0001 *

From Table 1 it can be concluded that there is a highly significant correlation ( $p \approx 0.0001$ ) between task orientation and the variables of mastery/cooperation, physical active lifestyle, being a good citizen, enhancing self-esteem, individual locus of control. A significant correlation ( $p < 0.05$ ) between task orientation and the variables of competitiveness, high willingness to take risks and high feelings of independence. Results furthermore showed a highly significant ( $p \approx 0.0001$ ) correlation between ego orientation and the variables of being a good citizen, competitiveness, high status career, enhancing self-esteem, social status, locus of control by powerful others, chance control and individual control, low willingness to take risks and low feelings of independence. A significant correlation ( $p < 0.05$ ) exists between ego orientation and the variable of physical active lifestyle.

An analysis of the  $R^2$ -values indicate the percentage variation in task/ego which is explained by the other variables (ex.  $R^2 = 0.18839$  : 18839% of the variation in task is explained by mastery/cooperation).  $R^2 = D$  indicates a situation in which there is no relation between the two variables.

## DISCUSSION

The social and educational perceptions of sport being an instrument for socialization and education is endorsed by the results suggesting a task orientation of respondents. The predominant task orientation of respondents implies a positive perception on sport (Duda, 1989; 1993a; 1993b) and sport participation will tend to produce individuals and decision makers who internalize and abide by society's rules, scripts or norms. When this is accomplished the social order is relatively stable and a homeostatic balance is achieved (Leonard II, 1993). A predominant ego oriented perspective on sport on the other hand, suggests a negative outlook on and use of sport (Duda, 1989; 1993a; 1993b). Under these conditions sport participation will tend to stray from the expected guidelines and may result in social deviance (Leonard II, 1993). Social deviance in sport becomes visible via unethical decisions and behaviour and motivational disturbances. An unhealthy sport climate may result and permeate to participation as well as decision making.

Hypothesis 1 was confirmed by the results and hypothesis 2 was rejected. Because no significant differences between respondents of different universities representing different generic culture groups could be found, it can be deducted that sport can be a trans-cultural, social integrator. Similarities on the values underlying the purpose of sport (including task and ego), imply that sport shares common values and ground between cultures. The possibility therefore exists for the inclusion and formalisation of sport as an educational instrument for enhanced cultural integration and tolerance. This finding could be significant for sport decision makers in multi-cultural societies such as South Africa.

Results also confirmed hypothesis 3 implying that the highly desirable variables that are found in purpose of sport and entrepreneurship, correlate highly with task orientation. This suggests that future decision makers in sport tend to have a



positive perspective on sport and its purpose. At the same time results confirmed hypothesis 4. In a study of Duda on the relationship between task and ego orientation and the perceived purpose of sport among high school athletes, she found a very strong correlation between task orientation, mastery/cooperation, being a good citizen and also that sport participation should enhanced self-esteem and promote physically active lifestyle. She also found ego orientation related to social status, competitiveness, high status career and enhanced self-esteem. She concluded that the ego relates to the "dog-eat-dog world" that is full of survival of the fittest competitiveness (Duda, 1989). This study confirms and strengthens her findings. It should be noted there are no truly separate ego or task orientation individuals. This could explain the overlapping of variables such as self-esteem and competitiveness (ego dimensions) correlating both with ego and task orientation. The same applies to the variables of good citizen, individual control and active lifestyle (task dimensions) that correlates with both ego and task orientation. Comparing the mean scores for ego and task orientation of the total population (n=520), it was evident that the ego orientation is still in a subordinate position in relation to the task orientation.

A trans-cultural global curriculum for sport training could therefore be compiled to refine and amplify elements of task orientation and positive entrepreneurial orientation. This deduction is based on the rejection of hypothesis 5 by the results.

### CONCLUSION

Although the sample of respondents (students in the Human Movement Sciences) could be seen as a limitation of this study, it can at the same time be interpreted as a starting point to gain insight in the perspectives of future decision makers and agents in the sport industry. Subsequently findings can be used to guide, develop and implement primary, secondary and tertiary

curricula to foster positive sport orientation. This is an exploratory study and although the findings are positive and fascinating, more extensive research is needed.

#### REFERENCES

Chell, E., Haworth, J., & Brearley, S. (1991). The entrepreneurial personality. London: Routledge.

Duda, J.L. (1989). Relationship between Task and Ego Orientation and the Perceived Purpose of Sport among High School Athletes. Journal of Sport & Exercise Psychology, 11, 318-335.

Duda, J.L. (1993a). A goal perspective theory of meaning and motivation in sport. Paper presented at the Eighth World Congress in Sport Psychology, Lisbon, Portugal.

Duda, J.L. (1993b). Goals: A Social-Cognitive Approach to the Study of Achievement Motivation in Sport. In R. Singer (ed.), Handbook of Research on Sport Psychology. New York: MacMillan.

Hisrich, R.D., & Peters, M.P. (1989). Entrepreneurship starting, developing and managing a new enterprise. Irwin, Homewood, Il.

Leonard II, W.M. (1993). A sociological perspective of sport. New York: MacMillan Publishing Co.

Levenson, H. (1974). Locus of control. Journal of Personality Assessment, 38:377-383.

Intrinsic motivation

THE EFFECT OF POSITIVE VERBAL FEEDBACK ON THE INTRINSIC  
MOTIVATION OF GRADE ONE BOYS AND GIRLS PERFORMING A MOTOR  
SKILL

GAETANE TREMBLAY AND DENNIS HRYCAIKO UNIVERSITY OF MANITOBA  
WINNIPEG, MANITOBA, CANADA

## INTRODUCTION

The research published on intrinsic motivation (IM) presents conflicting conclusions with regard to the effect of positive verbal feedback on the IM of males and females. Some researchers (Deci, 1975; Zinser, Young & King, 1982) have reported that positive verbal feedback increases males' IM while it decreases females' IM. However, other studies (Vallerand & Reid, 1988; Blanck, Reis & Jackson, 1984) found no gender differences. The conflicting results have usually been interpreted through cognitive evaluation theory by suggesting that the different socialization experiences of males and females might explain the conflicting findings. For example, research (Deci, 1972, 1975) with university undergraduate subjects found a gender difference, while similar research (Blanck, et al., 1984) a decade later found no gender difference. These results could be explained if one accepts the fact that socialization experiences of females changed from the 1970's to the 1980's. Although this is a possible explanation a study (Zinser et al., 1982) in the latter decade reported a gender difference with "young" children. A possible explanation for these results is that changes in socialization may have taken place over the years, but that it only affected females who interacted in an achievement-oriented setting such as university, while children who have not yet engaged in such a setting may still be subjected to "traditional" socialization practice (Vallerand & Reid, 1988). The main purpose of this study was to explore the relationship between positive verbal feedback and IM of grade one boys and girls performing a motor skill. The study was undertaken in an effort to clarify the conflicting results of previously reported research. In addition, a very limited amount of the reported research (Zinser et al., 1982) has been conducted with elementary school children. Finally, there is a complete lack of research with young children utilizing tasks involving the motor skills required in the elementary school physical education setting.

## METHOD

### Subjects

Sixty grade one students (thirty boys and thirty girls) were randomly selected from four local elementary schools. The age of the subjects (Ss) was approximately 6 years, their age in months was as follows: Both genders (M=74.7, SD=3.7), males (M=75.8, SD=3.8), females (M=73.6, SD=3.3).

### Experimental Design

The experimental design was a 2 X 2 factorial design. Factor A was gender (male/female) and Factor B was positive verbal feedback (no feedback/feedback) given to the Ss performing a motor skill task. A moderate amount of positive verbal feedback or no feedback was applied. The moderate amount, 12 verbal reinforcements over 24 trials, was chosen arbitrarily based on Vallerand (1983) who concluded that positive feedback increases IM regardless of the amount of feedback presented. Each gender group was randomly assigned to one of the two conditions (i.e. feedback/no feedback). Following random assignment to groups the age of the Ss in each group were as follows: feedback groups (M=75.3, SD=3.8), no feedback groups (M=74.1, SD=3.5). Ensuring that the groups were similar in age and limited to approximately six years was important in this study due to the socialization effect as specified by Vallerand & Reid (1988). The dependent variable was the level of IM of the Ss and was operationally defined as time spent on the experimental task during a free choice period. The Ss' IM score resulted from the percentage of time that the subject (S) spent at the experimental task during the eight minute free choice period [i.e. (# of seconds on task/480) X 100]. The S was considered involved in

## Intrinsic motivation

the task when he/she was throwing bean bags at the target. Inter-rater reliability was used to analyse the videotapes. Two individuals independently calculated the percentage of time that the Ss spent at the experimental task. One of these individuals was blind to the group to which each S was assigned.

## Tasks

The tasks for the study were identified following consultation with the physical education teachers of the schools involved in the study. Four tasks were identified: a bean bag target game, a deck tennis rings toss game, jumping on a mini-trampoline, and activities with hoops. The bean bag target game was used as the experimental task. The subjects were asked to throw, underhand, six bean bags at the target and to do so at four different distances: 1.5 metres, 2 metres, 2.5 metres and 3 metres. The other three tasks were the alternative tasks available during the free choice period.

## Procedure

In order to ensure that the children were in a familiar surrounding, subjects were tested in their own school gymnasium using their school's equipment. Also, the physical education teachers were asked to use the four tasks as stations in one of their classes one week prior to the experiment. This approach was to ensure that none of the tasks were novel to the subjects. Furthermore, the experimenter visited the schools and was introduced to the grade one classes one week prior to the experiment. A video camera was hidden and pointed toward the area of the experimental task. The camera was used to collect the data, including the amount of time the children spent at the experimental task during the eight minute free choice period. The children were taken one at a time to the gymnasium where the experimenter told them that, although there

## Intrinsic motivation

was other equipment in the gymnasium, they would only be using the bean bag target game for the test, and then explained what he/she would have to do. The explanation was followed with a demonstration. The 'no feedback' group was told that the experimenter would not talk to them during the experiment because she was be too busy writing down their results. The feedback group was told that during the experiment the experimenter would write down their results. The experimenter carried a clipboard and wrote bogus comments during the experiment. With the feedback groups, positive verbal feedback was given to the subjects. Following the completion of the task, the experimenter told the subject that she had to go to the office for a few minutes and that while waiting the subject could play with whatever equipment was in the gymnasium as long as they stayed in the gymnasium and waited for the experimenter to return because she had to get some information from the subject before they could go back to the classroom. The experimenter then left the gymnasium for eight minutes. After eight minutes the experimenter returned, obtained some information about the S's perception of the task (not discussed here due to space, but not a factor in the results discussed) and informed the Ss that his/her results would be given to him/her later after all the other students had been tested. The S was then taken back to his/her classroom. Debriefing was done with all the Ss at the end of the entire experiment.

## RESULTS

In order to assess the effects of gender and positive verbal feedback on IM, a 2 X 2 (male/female X no feedback/feedback) analysis of variance was carried out on the Ss' IM score. Results of the analysis revealed that the gender main effect,  $F(1,56)=3.116$ ,  $p<.05$ , the treatment main effect,  $F(1,56)=.049$ ,  $p<.05$ , and the gender X treatment interaction,  $F(1,56)=1.986$ ,  $p<.05$ , were not significant. The inter-rater reliability was calculated through a Pearson

## Intrinsic motivation

correlation, using all the Ss, and revealed a coefficient of 0.997. As gender was not a significant factor Ss were then pooled together to provide a more powerful assessment of the feedback intervention. An independent t-test was performed to examine differences between the feedback group and the control group. This analysis revealed no significant effect,  $t(58)=0.217$ ,  $p<.05$ , and indicated that the intervention did not affect the IM levels of the Ss.

## DISCUSSION

The results do not support what has been consistently reported in previous research (Deci, 1975; Zinser et al., 1982; Blanck et al., 1984; Vallerand & Reid, 1988; Whitehead & Corbin, 1991) where positive verbal feedback was found to increase males' IM. The results were consistent with what was reported by Deci (1975) that is, females IM did not change following a moderate amount of positive verbal feedback. However, the fact that the overall results produced no significant differences between the feedback group and the control group is contrary to the published research. One possible explanation for the findings of the present study could revolve around the verbal feedback utilized. The type of feedback, the way the feedback was given, the context in which it was given, and the individual it was given to, are all factors that could have influenced its effect on IM. However, a moderate amount of feedback as described by Vallerand (1983) was appropriate for the age group (thirteen to sixteen years old) in his study. It is possible that six year olds might need more reinforcement. Alternatively, due to the age of the Ss, the feedback might have to be applied in a more



## Intrinsic motivation

dynamic manner. Since there is a very limited amount of reported research conducted with six year old Ss, and no research reported using motor skill tasks, these possible explanations are simply speculation. Vallerand & Reid (1988) interpreted the conflicting results reported on the effect of positive verbal feedback on the IM of male and female subjects by suggesting that changes in socialization practice may have taken place over the years, making both genders more similar in their reactions. However, they speculated that these changes may have occurred only for females who have interacted in an achievement-oriented setting. Females who have not yet engaged in such a setting, such as young children, would still be subject to "traditional" socialization practice. One of the goals of the present study was to examine this assumption by using young children as Ss. The socialization experience of young males and females might be more similar in the 1990's than in previous decades, but this is a difficult concept to measure. The findings of the present study does not support a differential socialization explanation. The study contributed to this area of research in two ways. First, it provided the first research on the effect of positive verbal feedback on IM using the motor skills required in the elementary school physical education setting. Secondly, it critically examined the influence of gender and the effect of positive verbal feedback on the IM of elementary school age students. As a result, this study demonstrated that a moderate amount of positive verbal feedback had no effect on the IM of six year old boys and girls performing a motor skill.

## REFERENCES

- Blanck, P.D., Reis, H.T., & Jackson, L. (1984). The effects of verbal reinforcement on intrinsic motivation for sex-linked tasks. Sex Roles, 10, 369-387.
- Deci, E.L. (1972). Intrinsic motivation, extrinsic reinforcement, and inequity. Journal of Personality and Social Psychology, 22, 113-120.
- Deci, E.L. (1975). Intrinsic motivation. New York: Plenum.
- Deci, E.L., & Ryan, R.M. (1985). Intrinsic motivation and self-determination in human behavior. New York: Plenum.
- Vallerand, R.J. (1983). The effect of differential amounts of positive feedback on the intrinsic motivation of male hockey players. Journal of Sport Psychology, 5, 100-107.
- Vallerand, R.J., & Reid, G. (1988). On the relative effects of positive and negative verbal feedback on males' and females' intrinsic motivation. Canadian Journal of Behavior Science, 20, 239-250.
- Whitehead, J.R., & Corbin, C.B. (1991). Youth fitness testing: The effect of percentile-based evaluative feedback on intrinsic motivation. Research Quarterly for Exercise and Sport, 62, 225-231.
- Zinser, O., Young, J.G., & King, P.E. (1982). The influence of verbal reward on intrinsic motivation in children. Journal of General Psychology, 106, 85-91.

## SOME IMPLICATIONS FROM ALTERNATIVE MODELS OF MOTIVES AND VALUES IN YOUTH SPORTS

Jean Whitehead

Chelsea School Research Centre, University of Brighton

Institute for the Study of Children in Sport, Eastbourne, East Sussex, UK.

### KEYWORDS

Achievement Goals; Values Conflict; Perceived Ability; Youth Sport.

### INTRODUCTION

This paper deals mainly with relationships between motives and values at a conceptual level. Structural features in the central constructs of models of achievement goals and of values are first identified and used to propose new research questions. Relationships between motives, values and perceived ability are then discussed and preliminary data is presented to illustrate some of the issues. Finally, different views about the origin of beliefs, values and motives are presented to promote discussion about antecedents and consequences in youth sport.

### ORTHOGONAL AND BI-POLAR STRUCTURES

#### Achievement Goals

From a motivational perspective, the achievement goal theories of Nicholls (1989) and of Dweck and Leggett (1988) both conceptualize two major dispositional achievement goals, one being self-referenced/task-focused and the other comparative/evaluative in nature. For Dweck, however, the two goals form one bi-polar dimension, whereas for Nicholls they are orthogonal.

Dweck has contrasted the behaviour of mastery-oriented children, who adopt a self-referenced or *learning* goal, with that of "learned helpless" children who adopt a comparative *performance* goal and are concerned about evaluation. Much research has focused on identifying cognitive, affective and behavioural correlates of children located at the extremes of the continuum. For example, maladaptive patterns of motivational behaviour and failure attributions are more likely in children who adopt *performance* rather than *learning* goals.

For Nicholls, achievement goals are seen as independent dimensions so children may be high or low in *task-orientation* (self-referenced) and simultaneously high or low in *ego-orientation* (comparative). In sport, these dispositional goal perspectives are assessed by the Task Ego Orientation in Sport Questionnaire (TEOSQ) of Duda and Nicholls (1989) and correlations between the *task-orientation* and *ego-orientation* scales typically show these constructs to be orthogonal. This dimensional structure prompts different research questions from those suggested by a bi-polar structure. For example, an exploration of the characteristics

of individuals with different goal profiles indicates that although a task rather than an ego orientation is generally more conducive to sport persistence, people who are high in both goals may persist even longer.

### Values

From a values perspective, Schwartz (1992) has developed the work of Rokeach (1973) and presents a model of ten human value types which are personal goal priorities for guiding behaviour and are underpinned by four motivational domains conceptualized as two bi-polar and orthogonal dimensions. One dimension contrasts the achievement and power value types, which have a motivational content of *self-enhancement*, with the universalism and benevolence value types, which have a selfless motivational content termed *self-transcendence*. The other dimension contrasts value types such as self-direction and stimulation, which have a motivational content characterised by *openness to change*, with value types such as security and conformity which have a motivational content termed *conservatism*. This model is generalized from smallest space analyses of data from 20 countries.

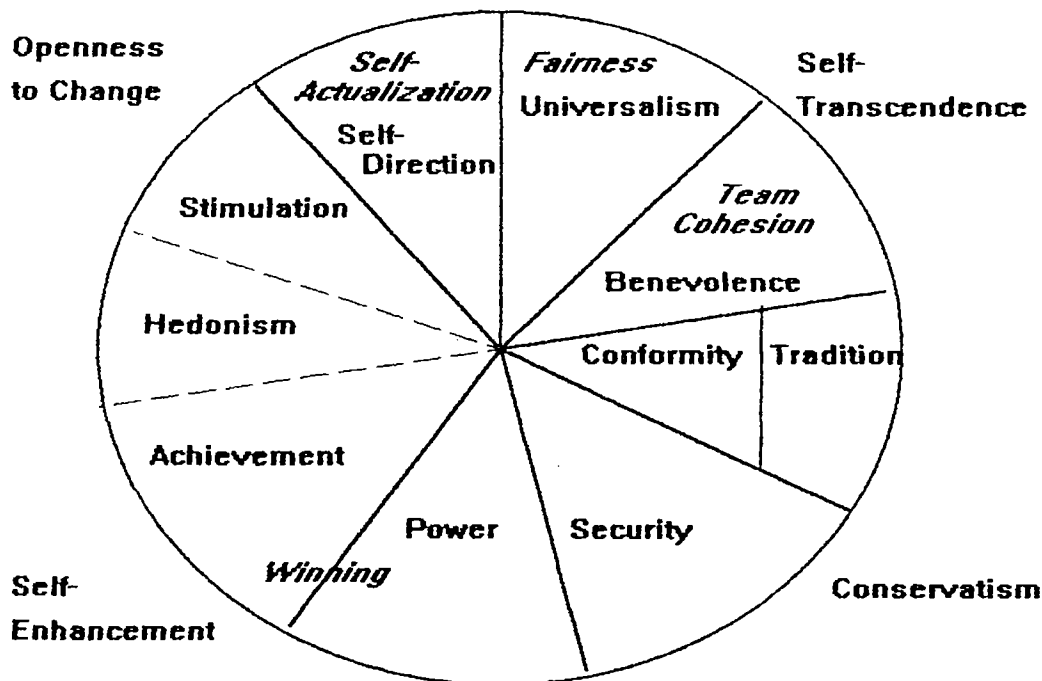


Fig. 1. The Model of Bardi and Schwartz (1994) adding Lee and Cockman's values

In sport-specific research, also developed from Rokeach's (1973) framework, Lee and Cockman (In Press) have identified 18 values spontaneously expressed by young athletes. Four of these, *winning*, *self-actualization*, *fairness*, and *team cohesion* are used by Bardi and Schwartz (1994) to show the potential of their model for studying value conflicts in sport. *Fairness* is identified with universalism, a concern for the good of all others, and *team cohesion*

is identified with benevolence, a concern for the welfare of the in-group, both values representing self-transcendence. In opposition to these values, *winning* is identified with achievement and power and placed at the self-enhancement end of the dimension. However, *self-actualization* is identified with self-direction as a representation of openness to change, on the dimension which is orthogonal to the first. Bardi & Schwartz (1994) therefore recommend that in order to reduce behaviour which violates standards of fairness, young athletes should be encouraged to prioritise the value of *self-actualization* rather than that of *winning*. This parallels the advice of Nicholls (1989), Duda (1992), and Dweck (1988) who encourage the adoption of task-oriented or learning goals to avoid maladaptive motivation patterns.

### Integration

Clearly there is much in common in the achievement goals research and the values research, although the terminology differs. Firstly, the values model provides a framework which is consistent with the orthogonal relationship of task and ego oriented goal perspectives. Secondly, Bardi and Schwartz (1994) note that adolescents do not readily distinguish between achievement and self-direction and that winning is initially located in the self-direction area of their smallest space analysis. Only later is it opposed to selfless value types. This fits Nicholls' (1989) developmental theory of achievement motivation which explains how children pass through four stages of cognitive development in progressively differentiating ability from effort as a causal factor. Only when they have the mature recognition that ability and effort are interdependent *and* that ability represents current capacity which limits the effect of effort, are the conceptual mechanisms in place which underpin the switch from a task-oriented to an ego-oriented goals perspective. Following this recognition, the experience or perceived probability of failure provides a threat to continued achievement striving.

Several features of the values model have implications for the development of research on achievement goals. Firstly, the model arises from a wider context than that of achievement situations hence the two achievement goals incorporated within it are not set against each other, as in Dweck's approach, nor are the orthogonal dimensions uni-polar as in Nicholls' approach which contrasts high and low scorers on the same scale. Instead the achievement goals are set against potentially conflicting values. Research using the four high/low x task/ego goal profile groups might therefore examine these combinations with reference to potential values conflicts. For example, if an ego-orientation is opposed to fair play, people with a high task/high ego profile may have more problems abiding by the rules than those with a high task/low ego profile. The "twin high" profile may thus be more desirable for persistence than for fair play.

Secondly, a feature of the values model is that value *conflicts* do not arise simply when opposing values are invoked, but when they are of similar importance. That is, there is no conflict for athletes who are highly ego-oriented and do not value fair play, but there is considerable conflict for those in whom both winning and fairness are important. So whereas

the study of goal profiles may require the selection of individuals with relatively extreme scores, rather than those in the central area of a distribution whose placement in any profile group may be determined by a sample-specific median, values research may focus more on individuals in central positions where conflicts may arise between values of equivalent importance.

A third consideration from values research, although not specifically from the model presented above, is that in order to study conflicts, an individual's value system or hierarchy must be accessed. Hence it is not sufficient to know whether an individual is high or low in task or ego orientation in relation to others in their subject population. What is important is which of these two goals takes priority when they are set in opposition. Such information may determine whether someone with a high task/high ego profile most values superiority, and hence may lack concern for others, or self-development which is not opposed to benevolence.

In summary, structural feature of the values model of Bardi and Schwartz (1994) indicate that achievement goals research might examine the implications of different goal profiles with respect to potentially opposing/conflicting values and also identify the relative priority of orthogonal goals with respect to each other. Conversely, achievement goals research suggests that values researchers might study values profiles and also explore interactions between values and other salient variables which mediate goal attainment in contrasting motivational domains. An illustration embracing the interaction of achievement goals with perceived ability, a variable which mediates potential goal attainment in achievement contexts, is developed below.

#### INTERACTIONS BETWEEN VALUES, ACHIEVEMENT GOALS AND PERCEIVED ABILITY

In his introduction to this FEPSAC symposium, Martin Lee presents a model which indicates how institutional and individual value systems might interact with other environmental and individual variables to influence cognitions, affect and behaviour. This section focuses on relationships between the three components in the *individual* box of this model: an athlete's personal goal orientation, perceived ability, and personal value system

In sport competition the demonstration of competence is paramount hence the knowledge of athletes' goal orientations, or the ways in which they construe ability and success in sport (Duda, 1992) is of central importance to understanding their thoughts, feelings and actions. If athletes interpret ability and success in self-referenced terms it is possible for them to achieve their goals by personal improvement, hence their perceived ability relative to others is irrelevant to goal attainment. However, if athletes construe ability and success in comparative terms, a major obstacle to goal attainment is posed when ability is perceived to be low.

Here there is a clear interaction between the effects of goal orientation and perceived ability on achievement-related behaviour and cognitions. Positive motivational patterns are typically found in task-oriented athletes regardless of their perceived ability, and in ego-oriented

athletes who perceive their ability to be high, but negative motivational patterns which are characterised by the withdrawal of effort after failure, are found in ego-oriented individuals whose perceived ability is low. This interaction has been supported in a number of studies reviewed by Duda (1992), and has been confirmed most recently by Andrée and Whitehead (1995) in the intrinsic motivation of 139 young athletes. In this sample the orthogonality of the task and ego orientations, and of perceived competence in relation to these goal perspectives, facilitated the formation of goal profile groups in which hypotheses could be tested by planned orthogonal comparisons. As predicted, the low perceived ability/comparative goals group had lower enjoyment and effort scores than the other profile groups.

Although the interaction between goal perspective and perceived ability is clear, it can provide only a partial explanation of achievement behaviour. For example, girls are generally less ego-oriented than boys, so on the basis of goal perspective alone they should persist longer in sport. This is manifestly not the case, so it is necessary to examine interactions with other variables. Girls typically have lower perceived competence in sport than boys do, and research indicates that participation motives for an activity are related to perceived competence in the activity (Klint & Weiss, 1987). Girls also value sport success less than boys do. Data from 390 upper school pupils aged 13 and 15 years (Whitehead & Evans, 1995) showed that while all subjects prioritised academic over sporting success, boys consistently rated sport success as more important than girls did. In this study the perceived competence of boys was not only higher than that of girls, but also higher than their perceived ability in schoolwork. Perceived competence was significantly related to the perceived importance of success in each domain, thus confirming the salience of this variable in values-related research.

From this, it seems clear that research is needed to examine the interactive effects of goal orientation, perceived ability, and an individual's personal values hierarchy. For example, it might be predicted that the interaction between goal orientation and perceived ability would be evident in subjects who hold sport success high in their personal value system, but not in other subjects. Achievement behaviours such as engagement in challenging tasks, persistence under difficulty, and use of effective cognitive strategies to maintain attention and understand the nature of the different task requirements seem more likely to be exhibited when an activity holds high personal value than when it is seen as unimportant. Similarly the more extreme maladaptive patterns, such as the use of deception or aggression to succeed, appear unnecessary if an activity which holds low value. However, a distinction must be drawn between the perceived value of succeeding in one domain rather than another, and the value of personal success *per se* in comparison with other personal values. Schwartz (1992) regards values as criteria which prioritise actions rather than properties of objects or activities.

An aspect not hitherto considered in this paper is the mediating role of the motivational "climate". A *state* of task-involvement or ego-involvement is invoked by dispositional goal

orientation but also by the structure and demands of the performance or learning environment created by the actions of those in authority and the rules governing the activity. Ames (1992) explains how she translated the theoretical components of *mastery* (self-referenced) and *performance* (comparative/evaluative) achievement goals into classroom parameters, and devised scales to measure the perception of these dimensions in the motivational climate. She also helped teachers to create more mastery-oriented climates by altering Epstein's (1988) task, authority, recognition, grouping and time (TARGET) dimensions of the learning environment, and these manipulations resulted in more adaptive motivation patterns in terms of how children approached, engaged in and responded to the learning activities.

This work has been extended to sport. For example, Treasure and Roberts (1994) manipulated TARGET variables in the teaching of soccer skills and found an interaction between the effect of perceived ability and motivational climate on the cognitive and affective responses of the young players. Similarly the interaction between perceived ability and goal orientation found by Andrée and Whitehead (1995) in the intrinsic motivation of young track and field athletes occurred both when goal orientation was assessed by dispositional orientation and when it was assessed by perceptions of the motivational climate.

Such research exemplifies an interaction between the individual and environmental boxes of the Lee model. Goal perspectives derived from the motivational climate, like those derived from dispositional goal orientation, will interact with the perceived ability of young athletes to influence their cognitions, affect and behaviour. The motivational climate is, in turn, created partially from actions arising from the value systems of significant adults, peers and institutions in the youth sport environment. The model therefore provides a framework for integrated research embracing both values and goal perspectives.

### PRIORITY OF BELIEFS, VALUES AND GOALS

Research which has examined the relative influence of dispositional and situationally derived goal perspectives on other variables (e.g. Newton, 1994) suggests that dispositional orientations have the stronger relationships with more stable variables, whereas orientations in the motivational climate correlate better with more transitory characteristics. This prompts questions about which constructs are most stable or fundamental in the psychological chain.

At one level, the *task-involved* and *ego-involved* goal perspectives of Nicholls (1989) and Duda (1992) are seen as organizing systems which give rise to predictable constellations of thoughts, feelings and actions. In this sense the goal perspectives are thought to underpin the psychological outcomes which accompany a self-referenced or comparative interpretation of ability. At another level it is important to distinguish between transitory states of *task-involvement* and *ego-involvement*, and the dispositional goal tendencies or *task-orientation* and *ego-orientation* which may invoke them. In general, the dispositional goals are thought to



## Implications from models

determine the initial probabilities of adopting particular goal perspectives but these are modified by contextual factors such as the feedback cues and demands produced by the momentary dynamics of achievement situations. Hall (1990) for example, has demonstrated this by manipulating perceived competence and individualistic or normative achievement climates. At a yet more fundamental level, dispositional orientations are thought to arise from the development of a differentiated view of ability and from socialization experiences. Additionally goal orientations are associated with personal theories of achievement incorporating beliefs about the causes of success and the purposes of sport.

From a somewhat different perspective, but also incorporating beliefs about the way the world works, Dweck and Leggett (1988) propose that *learning* or *performance* achievement goals arise from underlying beliefs about the controllability of personal characteristics. *Incremental* theorists believe that personal characteristics are malleable and capable of development, hence they adopt the open and experimental approach of the mastery-oriented child seeking to *improve* ability. In contrast, *entity* theorists believe that personal characteristics are rigid or fixed. This leads to the defensive behaviour of the "helpless" child seeking to *prove* or protect existing ability.

From a values perspective, a similar underpinning role for belief systems was found by Schwartz and Bilsky (1990) who examined 4 sets of value conflicts in data from 7 countries. In Eastern society, where Confucianist beliefs prevailed, values were placed differently in the motivational space and typical Western conflicts were avoided. For example, maturity and restrictive conformity were not perceived to be incompatible in Hong Kong, where Confucianism holds that human frailty renders self-direction attainable only through the self-regulation that promotes social harmony. Hong Kong represents a collectivist rather than individualistic culture, and in a lesser degree the predominant beliefs of a particular sporting sub-culture are likely to underpin the values and motives of its members.

In opening this symposium, Martin Lee asked whether motives underlie values or *vice versa*. Schwartz (1992) indicates that value types are founded on the motivational content of different human needs. At that level motives may be said to underlie values. At a higher level, I propose that values as guiding criteria might be considered alongside dispositional orientation, motivational climate, and cognitive development as antecedents influencing the adoption of transitory goal perspectives. It is beyond the scope of this paper to tease out the implications of other relationships, but this should provoke enlightening discussion.

## REFERENCES

- Ames, C. (1992). Achievement goals, motivational climate, and motivational processes. In G.C. Robert (Ed.) *Motivation in Sport and Exercise*. Champaign, IL, Human Kinetics.

## Implications from models

- Andrée, K.V., & Whitehead, J. (1995). The interactive influence of achievement goals and perceived ability on intrinsic motivation in young athletes. Paper presented at the North American Society for the Psychology of Sport and Physical Activity, Asilomar, June.
- Bardi, A., & Schwartz, S.H. (1994). Values and behavior in sports: A theoretical framework. Paper presented at the 23rd International Congress of Applied Psychology, Madrid, July.
- Duda, J.L. (1992). Motivation in sport settings: A goal perspective approach. In G.C. Roberts (Ed.) *Motivation in Sport and Exercise*. Champaign, IL, Human Kinetics.
- Duda, J.L., & Nicholls, J.G. (1989). The Task and Ego Orientation in Sport Questionnaire: Psychometric properties.
- Dweck, C.S., & Leggett, E.L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95, 256-273.
- Epstein, J. (1988). Effective schools or effective students? Dealing with diversity. In R. Haskins & B. MacRae (Eds.) *Policies for America's public schools*. Norwood, N.J, Ablex.
- Hall, H.K. (1990). A social-cognitive approach to goal setting: The mediating effects of achievement goals and perceived ability. Doctoral dissertation, University of Illinois.
- Klint, K.A., & Weiss, M.R. (1987). Perceived competence and motives for participation in youth sport: A test of Harter's perceived competence theory. *Journal of Sport Psychology*, 9, 55-65.
- Lee, M.J., & Cockman, M.C. (In Press). Values in children's sport: Spontaneously expressed values among young athletes. *The International Review for the Sociology of Sport*.
- Newton, M. (1994). The perceived motivational climate: Affective and cognitive correlates in female team sports. *Journal of Sport and Exercise Psychology*, 16, Supplement, S23.
- Nicholls, J. G. (1989). *The Competitive Ethos and Democratic Education*. Cambridge, MA, Harvard University Press.
- Rokeach, M. (1973). *The Nature of Human Values*. New York, The Free Press.
- Schwartz, S.H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In M.P. Zanna (Ed.) *Advances in Experimental Social Psychology*, 25, 1-65, New York, Academic Press.
- Schwartz, S.H., & Bilsky, W. (1990). Toward a theory of the universal content and structure of values: extensions and cross-cultural replications. *Journal of Personality and Social Psychology*, 58, 878-891.
- Treasure, D.C., & Roberts, G.C. (1994). The effects of task and ego involving conditions and perceived ability on children's cognitive and affective responses in sport. *Journal of Sport and Exercise Psychology*, 16, Supplement: 1994 NASPSPA Abstracts, S117.
- Whitehead, J., & Evans, N. (1995). The relative importance of success in sport and schoolwork. Paper to be presented at the British Association of Sport and Exercise Sciences, Belfast, September.

### **P.3.2. PERSONALITY**

---

## STUDENTS' ATTITUDES AND BEHAVIOR IN COEDUCATIONAL PHYSICAL EDUCATION CLASSES

Dorothee Alfermann, University of Leipzig, Germany

**Key words:** Coeducation; gender role; gender segregation

### INTRODUCTION

Gender segregation in childhood seems to be a cross-culturally universal phenomenon (cf. Maccoby 1990; Maccoby & Jacklin 1987). Even in Western societies with their ideology of sexual equality gender segregation is a well-documented finding. From early childhood on children seem to separate along gender lines. They play preferably in same-sex groups and when groups are formed spontaneously same-sex groups are the rule whereas mixed-sex groups are more or less the exception. Only when mixed-sex groups and gender desegregation are encouraged by adults like teachers or educators then boys and girls seem to be more willing to cooperate in mixed-sex groups.

In Germany, primary and secondary schools are normally coeducational schools. This means that normally boys and girls are taught together. This applies to all subjects, only physical education plays a different role. In grades one to four boys and girls are educated together, but afterwards, from grade 5 onwards, they are often separated. Till the seventies this was the normal case for physical education in all schools. But nowadays in some federal states schools are allowed to decide themselves if boys and girls are taught separately or jointly in physical education. And very often this results in a decision for coeducation. In some other federal states, mainly in Southern and in Eastern Germany, boys and girls are principally separated in physical education from grade 5 onwards. The reasons are manifold, but mainly two reasons are emphasized: First, gender differences in biological development and in performance which would make it difficult to educate both gender groups adequately. Secondly, gender differences in interests and motivation are mentioned, with girls seemingly preferring cooperation and boys competition, and the like.

In the seventies coeducation in physical education was introduced mainly for reasons of social learning. It was expected that coeducation would help boys and girls to gain a mutual understanding of their gender role socialization, that they would better be able to cooperate and to learn from each other in gender-typical movement patterns. And last but not least a pro-argument was that boys and girls would learn to play together, as in other fields of socialization - like in family or in leisure sport and especially in mixed-sex leisure groups in adolescence. As in physical education students typically interact in

small groups whereas in other subjects they typically learn individually social interaction can be studied quite easily. Thus physical education is an interesting social setting for studying gender segregation vs. integration.

## METHOD AND PROCEDURE

### Aims of the Study

At the moment the matter of coeducation in physical education is still controversial. Though coeducation had been introduced in secondary schools as a result of scientific and political discussion in several federal states, the discussion about the advantages and disadvantages of gender separation in sports still persists. One of the arguments against coeducation nowadays is the seemingly obvious discrimination of girls and a neglect of their interests and wishes. Therefore we conducted studies in various primary and secondary schools in order to investigate the social integration and interaction of boys and girls in coeducational physical education classes and their attitudes toward coeducation. When boys and girls are taught together one should expect that they would be able and willing to cooperate and to interact with each other. This means, for example, that we should find mixed-sex groups in these classes more often than would be expected by chance. In ball games boys and girls should have equal opportunities to interact and to pass the ball. And boys and girls should have nondiscriminatory attitudes toward the abilities of both sexes in sport and exercise. Besides assessing social interaction and social integration of boys and girls in coeducational classes, we also assessed the students' motor performance and compared the results to classes that had been educated separately. This was done in order to study the hypothesis that boys' and girls' motor abilities are better supported when taught in same-sex than in mixed-sex groups.

### Overview and Sample

To test the hypotheses of social integration and of cross-sex interaction in coeducational physical education classes 113 classes participated in the study, i.e. 17 third grade classes and 96 classes in secondary schools (grades 6 to 10). Students were observed during physical education three to four times. Among others the following measures were assessed:

(1) Measures of social distance vs. proximity: (a) the numbers of voluntarily formed mixed-sex groups (2 to 4 persons) in small group tasks; (b) the degree of mixed-sex grouping when the teacher rallied the class around her or him (seating aggregation index according to Campbell, Kruskal & Wallace 1966).

## Attitudes and behavior in coeducation

- (2) Measures of equality in interaction in ball games, operationalized via the number of passes and ball contacts per person in a mixed-sex team. To make the data comparable for different teams, the number of absolute ball contacts was statistically adjusted.
- (3) Measures of attitudes toward the physical abilities of the own and the other sex, operationalized via a sociometric procedure. Each boy and girl in a class had to nominate up to five students who were the best in sport in their class.
- (4) To investigate the attitudes toward coeducation in more detail standardized questionnaires were administered to another sample of coeducational classes of grades 8 and 9.
- (5) To test the hypothesis of a larger heterogeneity and a lower motor performance in coeducational classes we conducted several motor tests, measuring mainly speed, throwing power and takeoff power. In addition the data allowed to analyze gender differences in motor performance.

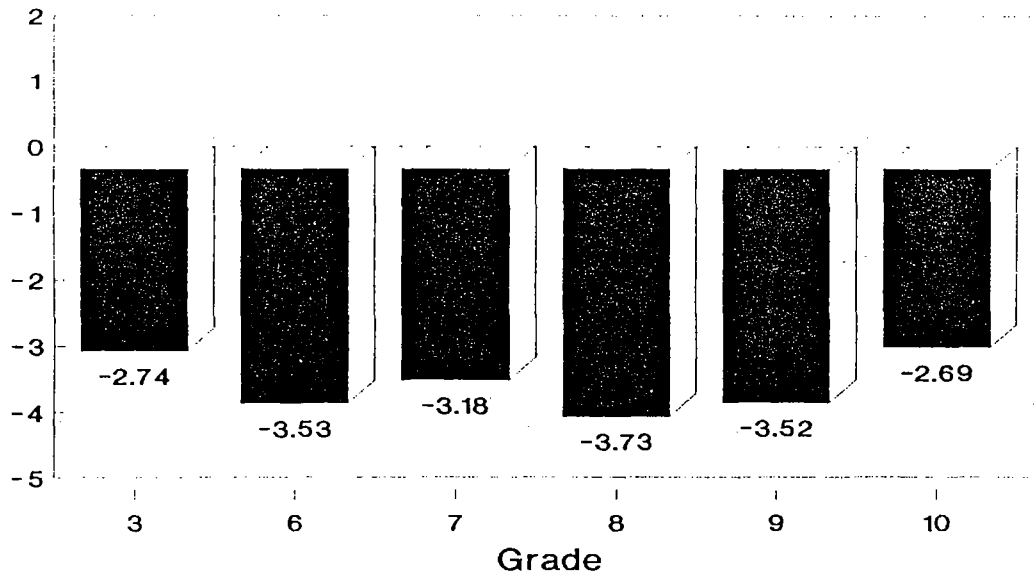
## RESULTS

The main results can be summarized as follows:

- (1) The majority of students in all grades preferred to form and to interact in single-sex groups. The average ratio of mixed-sex groups was between 5 and 20%, depending on grade. This means that on the average at least 80% of the groups formed during physical education lessons were all boys or all girls groups.
- (2) The typical pattern of classroom gatherings was that boys and girls formed same-sex clusters. When quantified by way of an index of social distance (Campbell et al. 1966), the figures show a clear segregation between boys and girls that begins to diminish in grade 10 (Figure 1).
- (3) Boys have a higher chance to get (catch and throw) the ball in mixed-sex ball games than girls. This holds less true in the third grade, but becomes more and more obvious in secondary schools, especially in competitive games like basketball. Here a boy gets more than twice as often the ball than a girl. Even girls with high abilities and skills get the ball less or only as equally often as boys with low abilities (figure 2). In stepwise regression analyses gender alone is a significant predictor of participation in the game and explains up to 30% of the variance. Only skill level is a better predictor than gender! The reasons are first, that high ability boys participate in ball games the most, and as boys attribute physical abilities to boys significantly more highly

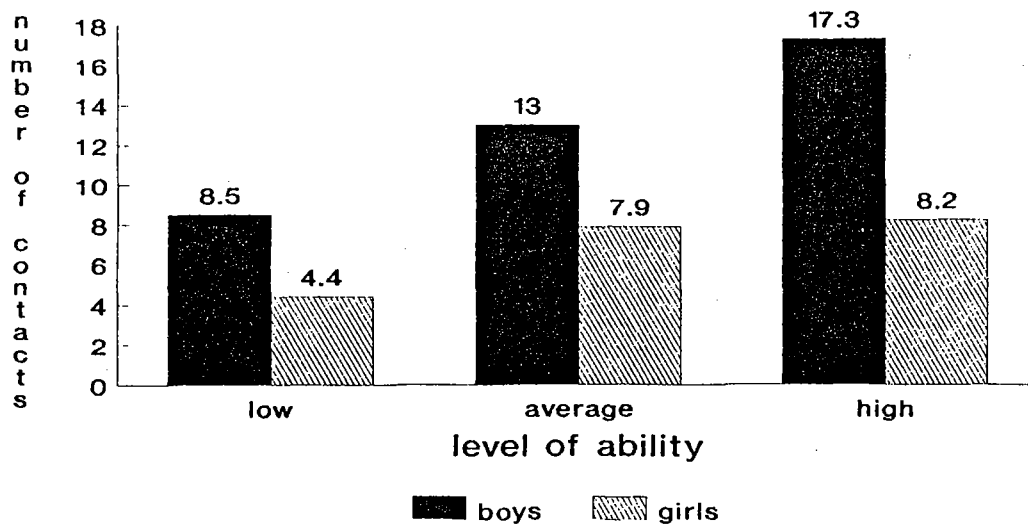
## Attitudes and behavior in coeducation

Figure 1 Gender Segregation in Physical Education Classes



The higher the negative value  
the higher the segregation

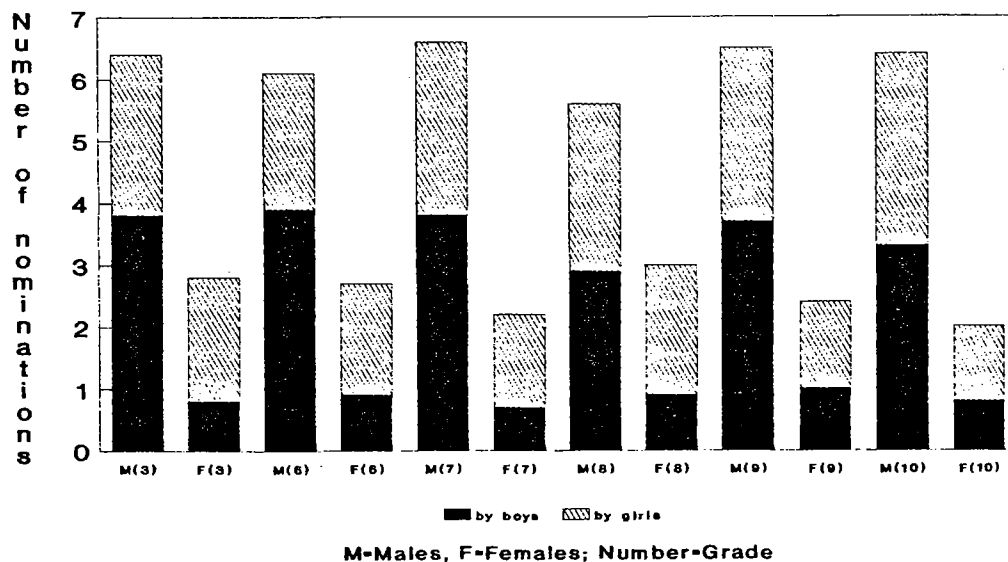
Figure 2 Who participates the most?  
Average number of ball contacts for  
boys and girls in basketball



than to girls they prefer passing the ball to a boy. Secondly good friends tend to play together and same-sex friendships are the rule, cross-sex friendships the exception. This again means that boys would prefer to pass the ball to boy than to a girl. But the data also show that girls' participation in mixed-sex teams increases relatively as the number of girls in teams increases. This implies that the number of boys and girls in these teams should at least be balanced in order to avoid an extremely asymmetrical pattern of interaction. The results of the ball games also show that they cannot simply be interpreted as indicating a lower standard of physical abilities on part of the girls.

(4) Boys are much more often chosen as the best students in sport than girls, even in third grades, where the 'objective' differences in physical abilities between the sexes are rather small. There seems to be a tremendous difference between both sexes in the tendency to discriminate girls: Boys show a clear preference for their own sex when nominating the best students in their class, whereas girls divide their choices more equally between the sexes. This picture emerges in the third grade as well as in grades 6 to 10 (figure 3). Thus it seems that boys tend to discriminate girls, showing a less favorable attitude toward their performance and showing a tendency to disregard them on ball games.

Figure 3 Who is the Best in Sport?  
Average Number of Nominations for  
Boys and for Girls





## Attitudes and behavior in coeducation

The results of the attitude questionnaire show that the majority of boys and girls has a favorable attitude toward coeducation in sport, but girls less so than boys. This results mainly from the girls' experience not to be accepted by the boys as a partner with equal rights and opportunities.

(5) The results of our motor performance test show no or small differences between the sexes up to grade 8. From grade 9 onwards boys excel girls due to their biological advantage. Only throwing is different. Here the boys excel the girls from the beginning. The differences between both sexes are equivalent to two standard deviations. These results correspond quite well to the meta analysis of Thomas & French (1985). In addition no differences in motor performance could be found between same-sex and mixed-sex classes. Thus the performance seems not to depend on the kind of classroom organization.

## CONCLUSIONS

Physical education certainly is a field where gender role socialization takes place. It could be a field where boys and girls learn to interact in an equal and nondiscriminatory way. The reality is different. In the majority of our classes girls and boys interacted only rarely, and if they did, very often girls were at a disadvantage. The conclusions should be to initiate more cross-sex interaction and to give girls more chances to participate in games. In addition the content of the lessons should emphasize not only competitive and typically male sports but also cooperative games and typically female sports. In this way boys and girls should better learn the lesson of gender equality and especially of equally valuable abilities of the sexes.

References

- Campbell, D.T., Kruskal, H.W. & Wallace, W.P. (1966). Seating aggregation as an index of attitude. *Sociometry*, 29, 1-15.
- Maccoby, E.E. (1990). Gender and relationships. A developmental account. *American Psychologist*, 45, 513-520.
- Maccoby, E.E. & Jacklin, C.N. (1987). Gender segregation in childhood. In H.W. Reese (Ed.), *Advances in child development and behavior*, vol 20 (pp. 239-288). New York: Academic Press.
- Thomas, J.P. & French, K.E. (1985). Gender differences across age in motor performance: A meta analysis. *Psychological Bulletin*, 98, 260-282.

---

The studies reported herein were supported by a grant from the Federal Institute of Sport Science in Cologne and by a grant from the Ministry of Culture in Hessen.

## **EXPLORING THE PERSONALITY OF PHYSICAL EDUCATION STUDENTS WITH THE RORSCHACH INKBLOT TEST**

Hanspeter Gubelmann

Swiss Federal Institute of Technology, Zurich, Switzerland

**Key Words:** Rorschach Inkblot Test, Physical Education Students, Personality, Freiburger Personality Inventory (FPI)

### **INTRODUCTION**

Assessing personality of athletes always has been identified as an area of major interest within sport psychology. A large body of research studies concentrates on specific traits and skills, whereas a more general approach to investigating the entire personality is not popular among sport psychologists. Most often, questionnaires, interviews or objective tests are used to examine different aspects of personality. The application of projective tests such as the Thematic Aperception Test (TAT) or the Rorschach inkblot test, which offer a more detailed inside view of the functioning structure of a human being, seem to be restricted to special groups in sports, such as mentally retarded athletes. The unpopularity of projective tests is probably due to the complexity of the instruments and major criticisms concerning their validity and reliability, as well as the length of time required to administer them correctly.

The main purpose of the investigation presented in this paper was to gain an insight into the personality of physical education students. Two independent but thematically related studies were conducted, both of them addressing the issue from a different point of view. In study I the Rorschach inkblot test was administered to p.e. students over the past four years. This research sought general information regarding the personality of the subjects who then were about to finish their studies. In study II Bütler & Ulrich (1994) and Gubelmann (1994b) tried to clarify the role of consultation and supervision in the education of prospective p.e. teachers. On this occasion, the Freiburger Personality Inventory (FPI) was used in order to identify personal needs, conflict situations as well as characteristics of some personality dimensions.

## METHODS & RESULTS

### *Study I*

Heavily influenced by S. Freud's psychoanalysis and Jung's verbal free association testing technique, Hermann Rorschach was a promoter of psychoanalysis among Swiss psychiatrists. At the beginning, Binet had suggested the use of standardized inkblots to measure imagination. Putting these notions together Rorschach extended the inkblot testing technique to the measurement of the entire personality. This type of exploring personality is referred to as a projective test<sup>1</sup>. Although mainly used in a clinical setting the Rorschach inkblot test is applicable in a variety of different occasions. The basic task is simple. The test consists of ten cards. Five of them are black and white, two are black, white, and red, and the last three are in color. The test instruction is intentionally vague ("What do you see on this card?"). The assumption is that everything mentioned in this ambiguous situation will reveal something significant about the subject's motives, needs, conflicts, and functioning structure.

In the present research the Rorschach inkblot test was used in order to explore the personality of physical education students at the Swiss Federal Institute of Technology. From 1991 to 1994, 28 female and 24 male p.e. students ( $M(\text{age}) = 24.1$  years,  $SD = 1.3$ ) took the test including the whole set of 10 different inkblot cards. Subsequent to the assessment, the categorization of the answers, the calculation of different personality factors, as well as the interpretation of each personal report was done according to BOHM's (1967) guidelines for Rorschach testing provided in his book on psychodiagnostic testing.

According to Vealey (1992, 50) who concluded that "no distinguishable athletic personality has been shown to exist", it was hypothesized that the group of physical education students would not considerably differ from the population norm. Furthermore, a comparison of the personality profiles should reveal more information about the heterogeneity of the subject sample. To explore possible gender differences, a series of analyses on different personality factors was computed.

In Table 1 descriptive statistics for all the dependent variables are given. Compared to the norm group physical education students (both gender) differ in three dimensions:

<sup>1</sup> The term "projective" is misleading. First introduced by Freud "projection" means the attribution of repressed impulses to others. In German the term "projective" has been replaced by another more neutral term („Deutungsverfahren“ or „Form-Deut-Test“).

**TABLE 1: Main Results of Rorschach Testing with Swiss P.E. Students**

<b>Description</b>	<b>Variable</b>	<b>Female (n=28)</b>	<b>Male (n=24)</b>	<b>Group (n=52)</b>	<b>Norm *(A=60)</b>
<b>Response to the whole blot</b>	W				
<i>M</i>		10.4	11.2	10.8	12.0 *
<i>SD</i>		5.3	6.5	5.8	
<b>Response to a large part of it</b>	D				
<i>M</i>		43.4	42.1	42.8	38.0 *
<i>SD</i>		13.5	10.9	12.3	
<b>Response to a minor detail</b>	Dd				
<i>M</i>		3.4	3.0	3.2	4.0 *
<i>SD</i>		2.9	3.6	3.2	
<b>Response to the white spaces</b>	S				
<i>M</i>		7.3	6.3	6.8	6.0 *
<i>SD</i>		5.1	4.8	4.9	
<b>Human movement response</b>	B				
<i>M</i>		6.6	6.4	6.5	-
<i>SD</i>		5.0	4.9	4.9	
<b>Number of responses</b>	N				
<i>M</i>		64.6	62.7	63.7	30.0
<i>SD</i>		18.2	15.4	16.8	
<b>Affective ratio</b>	Afr				
<i>M</i>		31.3	30.4	30.9%	30.0%
<i>SD</i>		5.2	3.6	4.5%	
<b>% of form dominant responses</b>	F%				
<i>M</i>		77.4	78.2	77.7%	75.0%
<i>SD</i>		8.8	10.9	9.7%	
<b>% of the good form dominant resp.</b>	F+%				
<i>M</i>		78.6	77.4	78.0%	85-95%
<i>SD</i>		10.7	7.0	9.1%	
<b>% of animal content</b>	A%				
<i>M</i>		39.5	40.3	39.9%	40.0%
<i>SD</i>		8.3	14.0	11.2%	
<b>% of human content</b>	H%				
<i>M</i>		21.9	23.6	22.7%	10.0%
<i>SD</i>		8.1	9.2	8.6%	
<b>% of object content</b>	Obj%				
<i>M</i>		15.6	14.8	14.7%	10.0%
<i>SD</i>		6.0	7.2	6.5	
<b>Time per response</b>	t/resp.				
<i>M</i>		50.1	51.1	50.6s	50-70s
<i>SD</i>		14.5	14.1	14.2s	

Note: The standard norms provided in Bohm's guidelines for Rorschach testing were adapted to the increased number of answers (A=60) given by the p.e. students in this study.

Number of responses (N), percentage of the good form dominant responses (F+%), and the percentage of responses with human content (H%). However, using an analysis of variance (ANOVA), gender did not show to be significant in regards to one of the thirteen dimensions. Interpretation of the data concerning the whole group of students could be summarized in the subsequent psychograph. Gubelmann (1994a) defines the "typical" physical education student at the Swiss Federal Institute of Technology, Department of Physical Education in Zurich, Switzerland, as:

*"Intelligent (W, Succession, A%), especially practical intelligence (D, A:Ad), with an emphasized productive-creative artistic ability (N, Orig.), very imaginative, extremely busy and tenacious (quantitative) worker (mania?) with a tendency to superficiality (N, D, F+%), pedantry and (positive) criticism (Pers., S, Criticism), a vivid and stabilized emotionality (Afr%, C) with a slight tendency to introversion (M, M/C). He or she is realistic, open-minded, and very sociable (RI, P%)."*

Claims of a specific personality profile of a "typical physical education student" seem to be substantiated by these outcomes. However, the validity of the present research is clearly limited by the fact that such a simplistic "prototype" neglects the heterogeneity of the group. The early stages of this line of research show that further investigation using specific measures is needed to better understand how the personality of physical education students is structured. One step in this direction was made in study II.

### ***Study II***

In 1994, an additional study on the personality of physical education students at the same institute was conducted by Bütler and Ulrich in order to validate the outcome of the Rorschach testing. Additionally, the results should give information about the student's need for a supervision and consultation service. The Freiburger Personality Inventory (FPI), an often used paper and pencil questionnaire was administered to a comparable group of 64 physical education students (32 female, 32 male, M (age): 24.7 years). The graphs of Figure 1 summarize the results of the FPI. No significant gender differences can be observed. Moreover, the personality profiles are in line with the Rorschach results previously presented in this paper.

Concentrating on the case studies of individual profiles almost dramatic revelations shatter the positive image of physical education students. In their study Bütler and Ulrich (1994) reported that in 24 of 64 cases (37.5%) critical patterns were found.

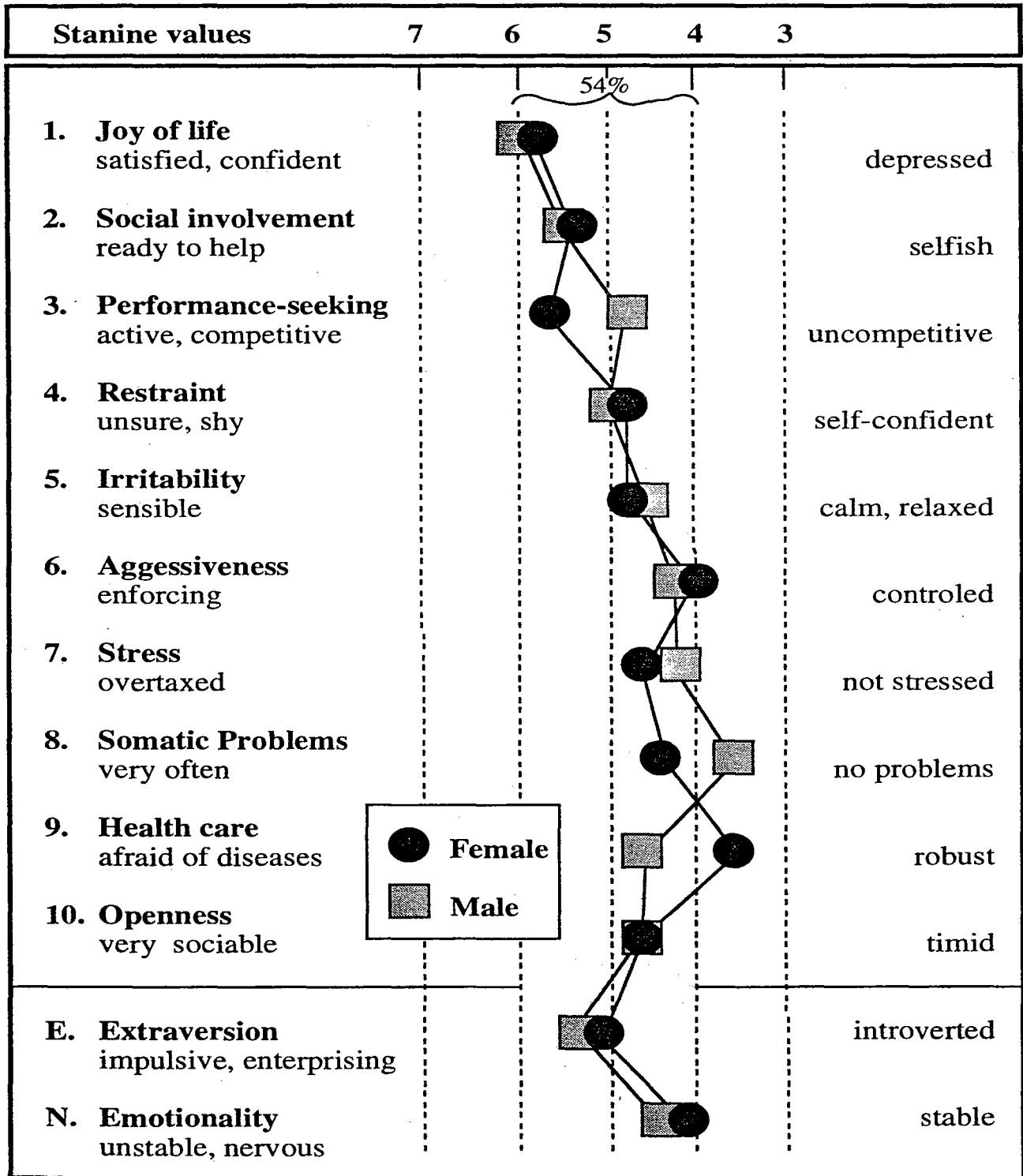


Figure 1: Male and Female P.E. Students: Comparison of Personality Profiles

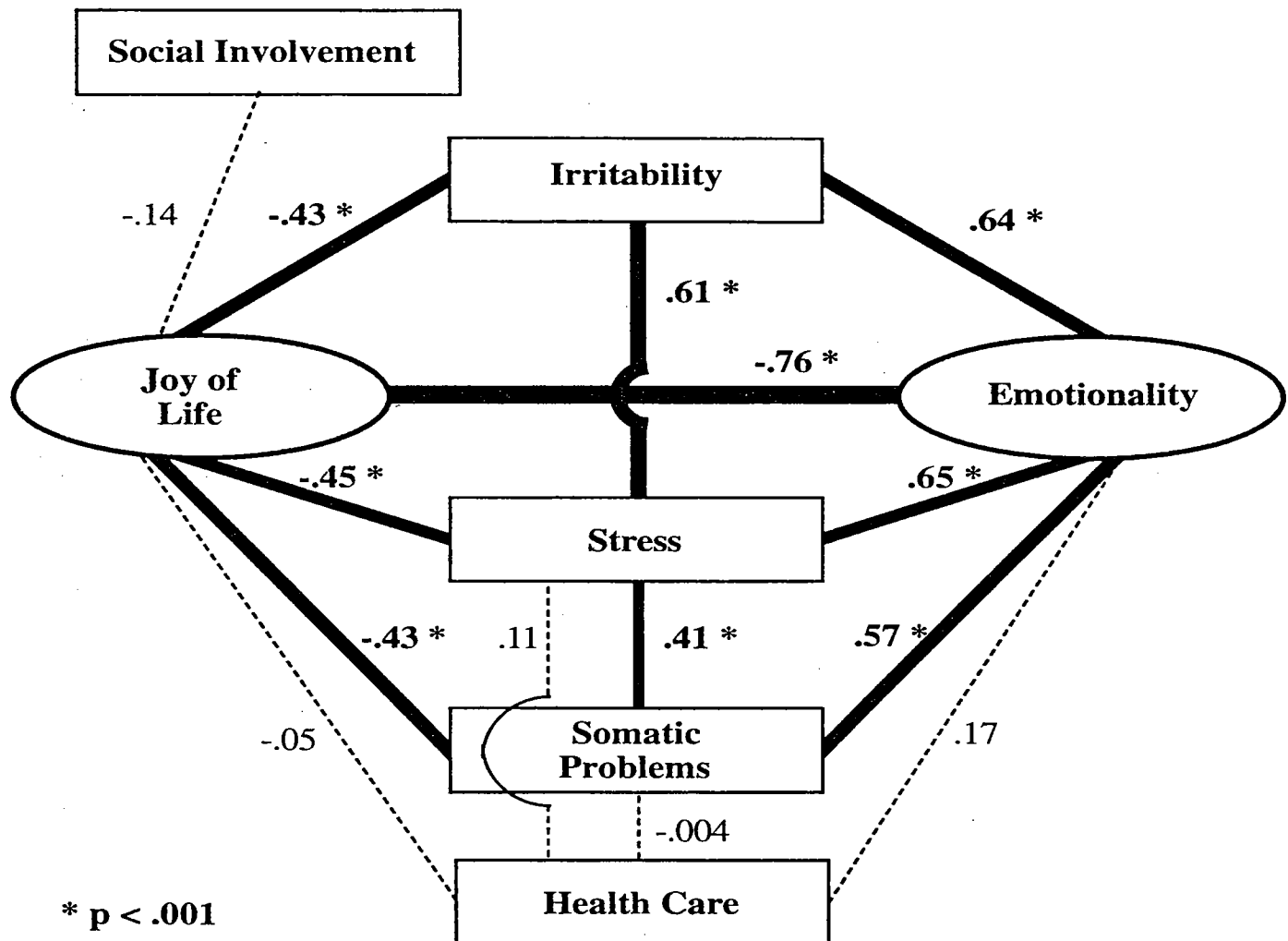


Figure 2. Model of the intercorrelations between different dimensions of the FPI

Furthermore, 14 (21.8%) cases were identified with serious disorders and problems indicating psychosocial maladjustments. Figure 2 shows a model of significant intercorrelations between important personality dimensions of the FPI. The analysis clearly reveals that happiness and confidence in the everyday life of a p.e. student were associated mainly with positive physical health, no somatic problems and no stress. However, it's obvious that somatic problems could reduce the stability of the system considerably.

As expected p.e. students rated themselves as socially involved and interested in helping other people. Again, this assumption coincide with the Rorschach results previously mentioned in this paper. Interestingly enough, the dimension 'social involvement' doesn't correlate positively with the other key-dimension 'joy of life'

(see Figure 2). According to Bohm this constellation might point to the fact that somebody experiences problems in human relations.

## CONCLUSION

The results presented in this paper, in general, support the findings of previous studies on personality (Vealey, 1992; Gubelmann, Pfyl, Schilling & Spada, 1994) indicating that the "identification of a typical personality trait pattern expected to appear in an 'athlete' is a tenuous undertaking" (Vanek & Cratty, 1970, 82). In summary, most interpretations on the personality of physical education students based upon the Rorschach results are supported by the outcome of the FPI testing. A closer look at some case studies revealed that p.e. students often have to face crisis, conflicts, and stress of any kind.

The results have important implications for the existing supervising and consultation service at the institute where this research was conducted. A large number of students reported problems in different situations of their lives. These observations may suggest that more emphasis should be placed on educating the students how to deal and to cope with different problems at the university as well as in everyday life. On the other hand, instructors should be given the opportunity to increase their teaching sensitivity.

## REFERENCES

- Bohm, E. (1967). *Lehrbuch der Rorschach-Psychodiagnostik*. Bern, Stuttgart: Huber
- Bütler, Martha & Ulrich, Verena (1994). *Beratung / Supervision an der Abteilung für Turn- und SportlehrerInnen an der ETH Zürich*. Unpublished thesis, Fritz Perls Institute, Düsseldorf.
- Gubelmann, H.-P. (1994a). *Persönlichkeit im Spiegel des Rorschach-Formdeutversuchs*. Unpublished study on physical education students from 1991 to 1994. Swiss Federal Institute of Technology, Zürich.
- Gubelmann, H.-P. (1994b). *Turn- und Sportlehrerstudierende: Versuch einer Typologisierung*. In: Bütler, Martha & Ulrich, Verena (1994). *Beratung / Supervision an der Abteilung für Turn- und SportlehrerInnen an der ETH Zürich*. Unpublished thesis, Fritz Perls Institute, Düsseldorf, 22-27.
- Gubelmann, H.-P., Pfyl, M., Schilling, G. & Spada, M. (1995). *Working situation, personality, motives, and commitment of German and Swiss decathletes*. Proceedings of the IX European Congress of Sport Psychology 1995 in Brussels.
- Vanek, M. & Cratty, B.J. (1970). *Psychology and the superior athlete*. Toronto: Macmillan.
- Vealey, R.S. (1992). *Personality and sport: a comprehensive view*. In: T.S. Horn (Ed.), *Advances in sport psychology*. Champaign, IL: Human Kinetics, 25-59.



## **WORKING SITUATION, PERSONALITY, MOTIVES AND COMMITMENT OF GERMAN AND SWISS DECATHLETES**

Hanspeter Gubelmann, Michael Pfyl, Guido Schilling & Mirko Spada  
Swiss Federal Institute of Technology, Zurich, Switzerland

**Key Words:** Commitment, Decathlon, Motivation, Working Situation, Personality, Elite Sports, Giessen-Test, Cross-Cultural Study

### **INTRODUCTION**

The decathlon is recognized as the most electrifying and challenging event among all disciplines in today's competitive track and field. The task of pursuing excellence in ten different disciplines, each of them demanding a very specific combination of physical and mental skills, puts every athlete to the most severe test. Therefore, world class decathletes are often considered as the "heroes" in modern sports embodying the renaissance of the ancient Greek ideal type of athlete with superior physical strength and strong personality.

Exploring the personality of elite athletes has received extensive research attention over the last three decades. Based upon different theories and paradigms of personality this research has generated a wealth of studies as well as a major impetus for the emergence of sport psychology. From an intuitive perspective two different approaches can be identified. First, there is the idea that certain traits or attributes are important to achieving success in competition. Second, it seems logical that these attributes may be shaped through participation in sport. However, Vealey (1992, 50) concluded that "no distinguishable 'athletic personality' has been shown to exist". Moreover, there is no evidence that personality attributes ('character') may be developed through sport participation. In contrast to this rather sobering conclusion personality differences between athletic subgroups have been reported in various studies (Schmid, 1993). To sum up, one can say that in the past the area of sport personality research failed to come up with useful findings mainly due to inappropriate paradigmatic, theoretical, and methodological approaches. Scientific rigor as well as research sophistication are necessary to examine the complex personality-behavior interactions.

Recently, a call for more comparative and cross-cultural studies has been made by several researchers in sport psychology and sport sociology (Duda & Allison, 1990; Baria, Salmela & Côté, 1993). Hence, the purpose of the present comparative study, based on the research conducted by Schmid (1993) was to identify and compare the

similarities and differences regarding working situation, personality, motives, and commitment of elite German and Swiss decathletes.

## METHODS

The present investigation is based upon a nomothetic approach. This approach, in contrast to the idiographic approach, studies individuals by comparing them to each other in order to arrive at common laws of behavior. It assumes "that a common set of descriptors, dispositions or trait dimensions can be used to characterize all persons and that individual differences are to be identified with different locations on those dimension" (Vealey, 1992, p.36). In accordance with this theoretical framework correlational methods were used in order to describe and examine elements of the athlete's personality and his functioning structure of behavior. The authors try to adopt the notion of a "differential" rather than a "general" perspective, previously proposed by Schmid (1993) in his study on different types of triathletes. According to Schmid and the phenomenon in question, the spheres of work, personality, motives, and commitment were deemed pertinent. More specifically, it has been hypothesized that among elite decathletes, who may be considered representative of elite athletes engaged in other track and field disciplines, different personality structures, motives and different work-sport relationships can be observed. In order to obtain a cross-cultural perspective, German and Swiss athletes were included in the present investigation. A self-completion questionnaire was mailed to the top 50 male junior and the top 50 male elite Swiss decathletes as well as to the top 40 male elite German decathletes. Mainly based on the Schmid study, the form comprised 122 items and was divided into two sections. The first section involved demographic and background information. The second section included a standardized personality inventory (Giessen-Test) and a set of items seeking information regarding the athlete's working situation, aspects of athletic commitment, and the motivation for decathloning. 70% of the German athletes and 92% of the Swiss returned the completed forms. Furthermore, 90% of the exclusive group of the 25 top-ranked Swiss and German decathletes<sup>1</sup> were represented in the sample. The statistical analysis refers to the main hypotheses as follows:

- Training and work situation for both groups are comparable.
- There are no significant differences in personality structure, motives to train and to compete between elite Swiss and German decathletes.<sup>2</sup>

---

<sup>1</sup> According to their personal bests in 1993.

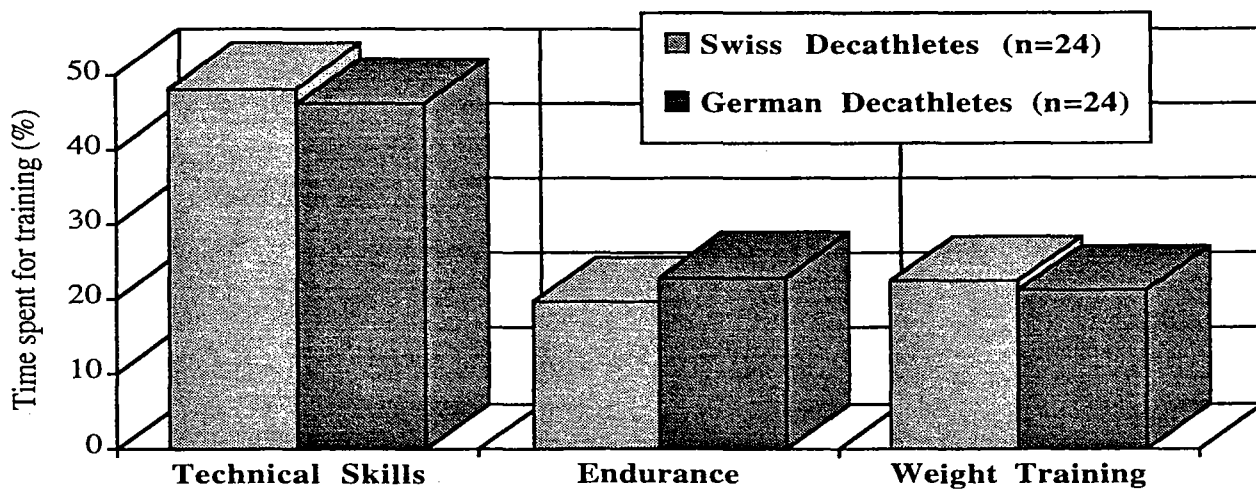
<sup>2</sup> All results presented in this paper are based on the exclusive sample of the best 25 decathletes of Germany and Switzerland.

## RESULTS

Table 1 and Figure 1 contain demographic and some important background characteristics of the top-ranked Swiss and German decathletes who were part of this study. German decathletes are younger in age, they practise significantly more and they perform on a higher level than their Swiss opponents. 75% of the top German decathletes are students, whereas the same status only applies to 12% of the Swiss team. Concerning the different aspects in practice German and Swiss athletes do not differ in the percentage of time spent for training specific skills (technique), endurance and weight training.

**TABLE 1. Characteristics Of Elite German And Swiss Decathletes**

	Age M (years) / SD		Personal best M (points) / SD		Training per week M (hours) / SD	
Switzerland (n=24)	25.33	3.52	7'343.7	347.3	11.63	3.89
Germany (n=24)	23.75	2.45	7'712.0	461.1	14.37	3.92



**Figure 1. Training Habits of German and Swiss Decathletes**

The fact that the Swiss decathletes do not perform nearly as good as their German opponentens isn't surprising at all. The German team is considered one of the best in the world, whereas the Swiss team performs on a mediocre level. Apparently, for German athletes the more time spent in practice has a positive impact on the their performances in competition. The amount of training highly correlates with the performance level in competition ( $r=0.46$ ,  $p<0.01$ ) indicating that training for decathloning is very time-consuming. The difference in age between the two groups might be related to the fact that every male Swiss has to join the army at the age of twenty. Normally, this military service of at least 17 weeks means a drastic break in the developing process of a young athlete.

Finally, regarding the congruent habits in practice (see Figure 1) it seems reasonable to assume that both teams have adopted common standards in this discipline. German (D) and Swiss (CH) decathletes spend almost the same amount of time enhancing technical skills (D:  $M=46.0\%$ ,  $SD=11.5$ ; CH:  $48.1$ ,  $SD=10.8$ ), endurance (D:  $M=22.8\%$ ,  $SD=10.3$ ; CH:  $M=19.6\%$ ,  $SD=7.7$ ), and physical strength (D:  $M=31.2\%$ ,  $SD=8.0$ ; CH:  $M=32.3\%$ ,  $SD=9.6$ ).

The statistical analysis of the questionnaire regarding the personality and the motivational aspects proceeded in three steps. First, principal component extraction and varimax rotation were used to identify a set of dimensions regarding work satisfaction, motives to train, motives to compete and athletic commitment. In the second step, the profiles of the the different groups were analyzed. Means were calculated separately for each dimensions to compare groupings. All results reported as significant are based on alpha levels of at least .05, two-tailed. Finally, efforts were made to identify specific patterns for these world class decathletes.

A one-way ANOVA was used to examine group differences in the personality scales. The statistical analysis showed significant differences in two major scales of personality: dominance ( $p<.01$ ) and control ( $p<.05$ ). German decathletes appear to be much more dominant, whereas Swiss are more concerned about controlling their activities. The different cultural background of the two groups can account for the differences in the two scales.

Interestingly enough, both groups do not differ significantly from the norms given in the manual of the "Giessen-Test", especially for the dimensions 'dominance' and 'control'. This observation is in line with other investigations which reported no significant differences between athletes and nonathletes regarding the personality (Schmid, 1993; Vealey, 1992).

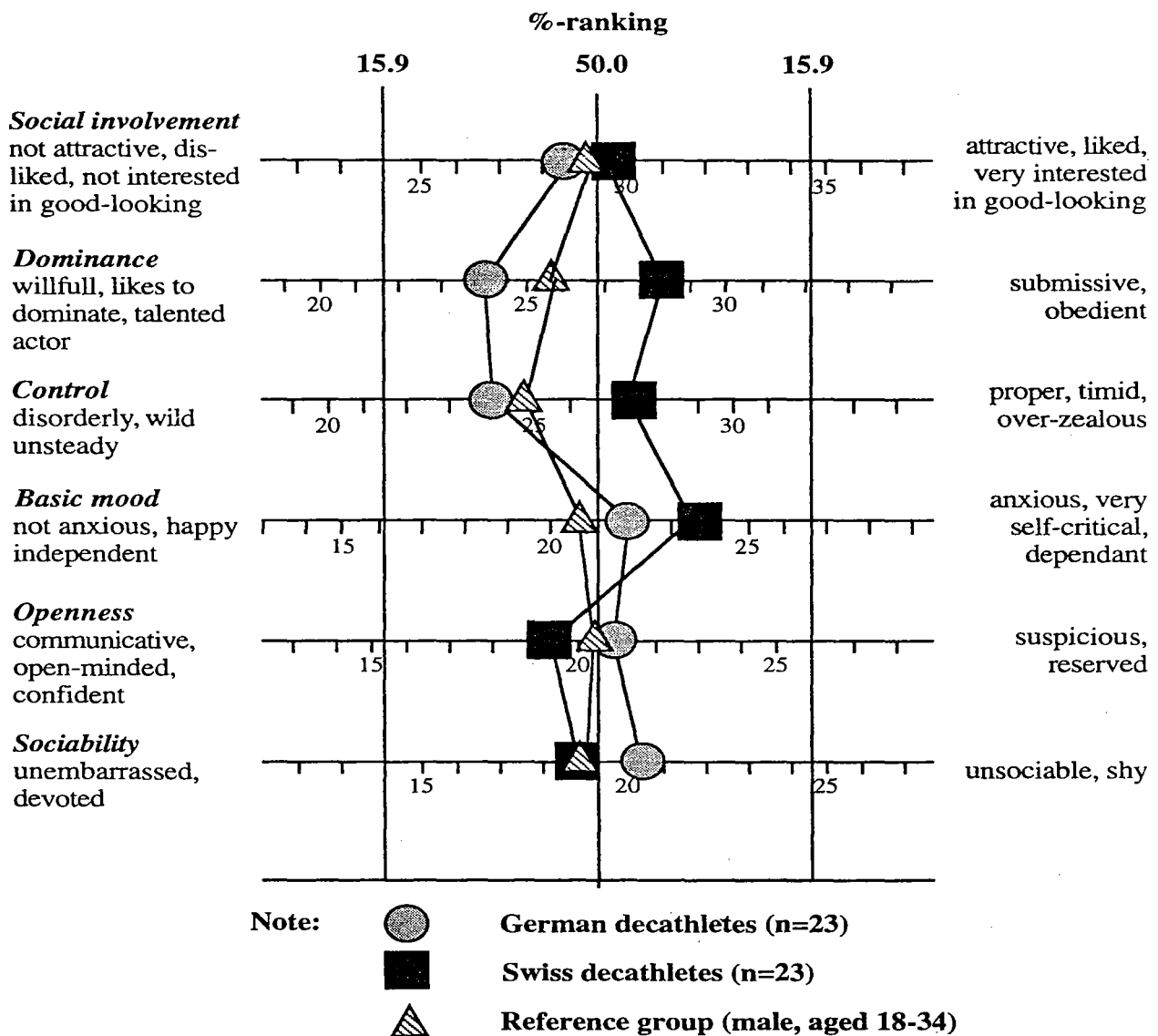
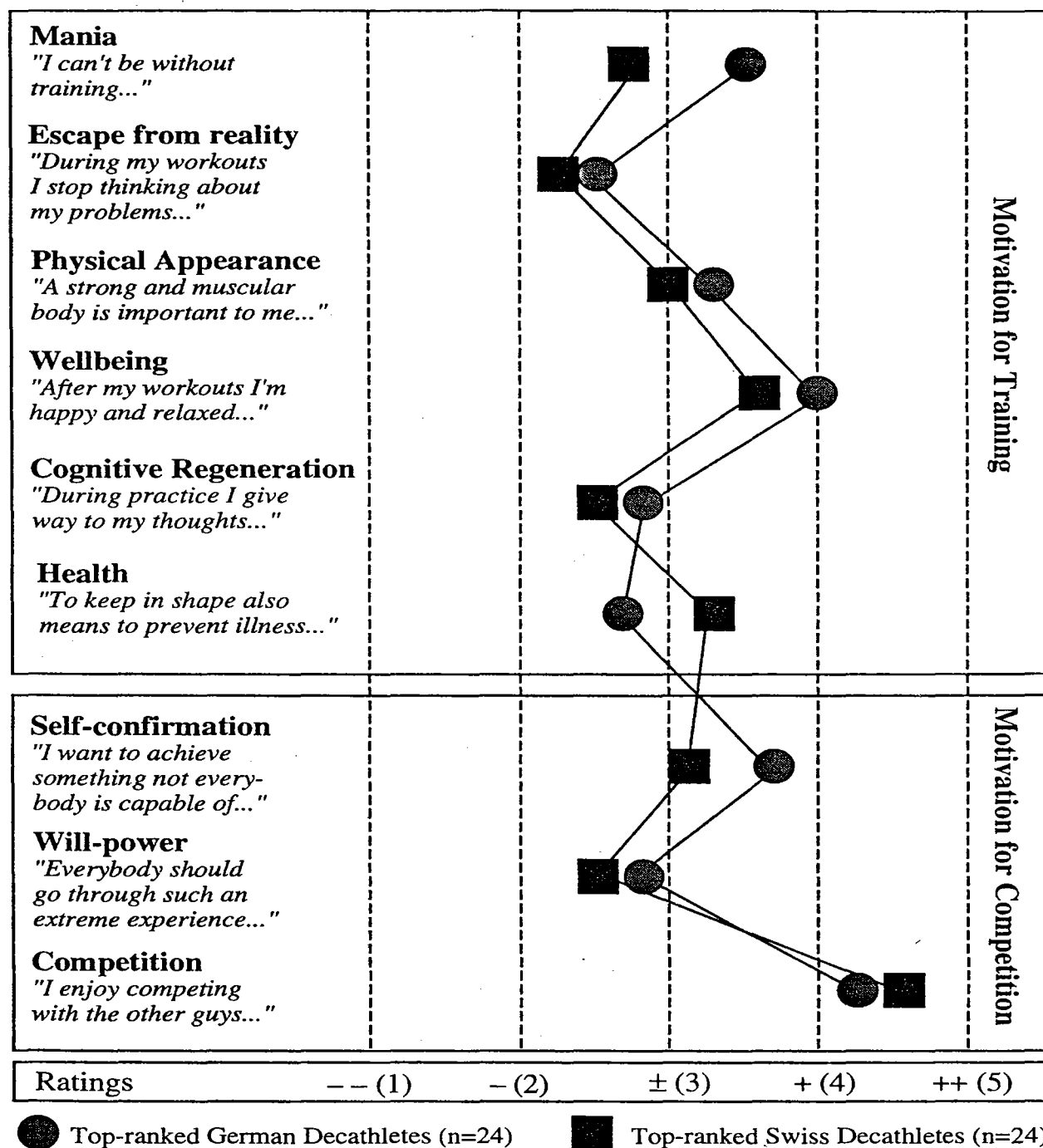


Figure 2. Personality Profiles of German and Swiss Decathletes

In Figure 3 the results on a variety of motivational aspects for training and competing are illustrated. In summary, German athletes report higher motivational level in eight out of ten dimensions, although only two significant difference ('mania' and 'self-confirmation', for both dimensions  $p < .05$ ) can be observed. The fact that German athletes attach more value and importance to decathloning (they also devote themselves to more hours in practice) might refer to a more professional attitude towards sport and decathloning in particular.



Note: Mean item score of the two groups was obtained by dividing the scale score by the number of items in the scale

Figure 3. Motives to Train and to Compete in Decathlon

## CONCLUSION

The research reported in this paper was designed to investigate the personalit, and different motivational aspects of elite German and Swiss decathletes. The findings on some background characteristics such as age, working situation, hours of training, and performance level already indicate significant differences between the to teams. In summary, German elite athletes seem to benefit from better conditions under which they participate in decathlon.

The results on the different aspects of the athletes' personality are in harmony with the mainstream personality research (Vanek & Cratty, 1970; Vealey, 1992). No significant differences between elite decathletes and nonathletes (population norm) could be found. However, the differences between German and Swiss decathletes in the dimensions 'control' and 'dominance' provide some support for the tendency to find differences among subgroups of athletes in sport (Schurr, Ashley & Joy, 1977). From an intuitive perspective, the present findings can be related to the different cultural background of both teams.

Finally, an attempt was made to identify motivational patterns among decathletes. Two significant differences ('mania' and 'self-confirmation') could be observed. In summary, it was concluded that German decathletes resemble more the 'professional' type of athlete, whereas for Swiss athletes decathloning is more likely a hobby.

## REFERENCES

- Baria, A., Salmela, J.H. & Côté, J. (1993). An international and comparative analysis of the coaching process in gymnastics. In: Serpa, S., Alves, J., Ferreira, V. & Paula-Brito, A. (Eds.), *Proceedings of the VIII World Congress of Sport Psychology*. Lisbon: Universidade Técnica de Lisboa, 188-192.
- Duda, J.L. & Allison, M.T. (1990). Cross-cultural analysis in exercise and sport Psychology: A void in the field. *Journal of Sport and Exercise Psychology*, 12, 114-131.
- Schmid, J. (1993). *Arbeit, Persönlichkeit, Motivation und Engagement für Ausdauersport. Eine empirische Typologie von Triathletinnen und Triathleten*. GFS-Schriften, Bd. 9. Zürich: Uni Zürich.
- Schurr, K.T., Ashley, M.A. & Joy, K.L. (1977). A multivariate analysis of male athletic characteristics: Sport type and success. *Multivariate Experimental Clinical Research*, 3, 55-68.
- Vanek, M. & Cratty, B.J. (1970). *Psychology and the superior athlete*. Toronto: Macmillan.
- Vealey, R.S. (1992). Personality and sport: a comprehensive view. In: T.S. Horn (Ed.), *Advances in sport psychology*. Champaign, IL: Human Kinetics, 25-59.

## SOCIAL MATURITY OF FOOTBALL PLAYERS AND THEIR RESULTS IN SPORT

Marcin KRAWCZYŃSKI, Waldemar TŁOKIŃSKI  
Academy of Physical Education, Gdańsk - Poland

**Key words:** personality, social maturity, football

### INTRODUCTION

The concept of social maturity as a personality dimension in operative sense was introduced by H.G.Gough (1966) starting from an assumption that it is such a meaningful set of behavioural patterns that it may be a subject of assessment. Gough based his concept on two general assumptions:

1. particular variables of the Psychological Inventory (CPI) should be possibly most closely related with social and interpersonal behaviour,
2. the most important are those interpersonal dispositions, which really suggest (or determine) positive and socially constructive behaviour.

Gough suggest to apply a set of measures assessing social maturity. According to him in every culture a process of social development is taking place, in which an individual may pass from the state of egocentrism, inadaptation, to the conditions of interpersonal affiliation and harmony in social life. No man, however, starts from the state of total alienation and seclusion, neither finalizes full achievement of the state of socialisation or assimilation. Each man, at every stage of his life, may be located at an identifiable place on a thus conceived scale of development.

To characterise the social maturity the socialisation scale (So) is sometimes applied (cf. Gough 1994). However, according to Gough (1966), socialization cannot be identified with social maturity. Socialization is related with the internalization of rules, principles and values, with stress put on their retainment and consolidation. Social maturity requires the creation of a new order and - in consequence - destruction of the old one. A socially mature individual - although capable to adapt him/herself to conventional rules - is also capable of introducing changes and innovations, and under



## SOCIAL MATURITY ...

repressive conditions may even stand out against the established order. Gough is of the opinion that a combination of dimensions of meaning much better identifies persons with a higher level of social maturity than an individual socialization scale. Gough quotes two equations that serve to determine the level of social maturity which include the selected scales. The first contains three variables and is simpler, the second contains six scales and allows to differentiate the studied persons with more precision:

$$1) 25.701 + 0.408 \text{ Re} + 0.478 \text{ So} - 0.296 \text{ Gi}$$

$$2) 28.062 + 0.148 \text{ Do} + 0.334 \text{ Re} + 0.512 \text{ So} - 0.317 \text{ Gi} - 0.274 \text{ Cm} + 0.227 \text{ Fx}$$

The weights in both equations are calculation weights to be applied for crude points established in particular scales. The equations composed by Gough define social maturity within the conceptual framework adopted by him. The scales included in the equations intend to mean the following:

1. Dominance (Do) - measures the ability of leadership, dominance, persistence and social initiative.
2. Responsibility (Re) - allows to identify persons who are conscientious, thorough, responsible and dependable.
3. Socialization (So) - measures the degree of social maturity, in particular the value of an individual in relation to his/her environment and the degree of the individual's integrity and rectitude.
4. Good impression (Gi) - identifies persons trying to create a favorable impression and who are concerned about how others react to them.
5. Communality (Cm) - indicates the degree to which an individual's reactions and responses correspond to the modal ("common"), generally accepted patterns of behaviour. It studies the accepting and nonaccepting attitude towards others.
6. Flexibility (Fx) - measures those traits, which indicate independent thinking and social behaviour.

A person achieving high scores is a stable, self-disciplined person, being at the same open to new experience, relatively free from petty, conventional rules and able to dampen impulsive reactions.

H.G.Gough applies as well the concept of "social adaptation", understanding here the inclusion of an individual in social life situations. The question is not related to an isolated act, but concerns continuous adaptation. For Gough adaptation is a potential value, it means the possibility of a certain behaviour, if favourable opportunities arise. Adaptation is described with the help of traits considered as predictors of social behaviour at different levels of development. The dominance (Do) and good impression (Gi) scales constitute the measures of social adaptation. Dominance represents the

adaptation consisting in realization of changes in the outer world. Good impression reflects the adaptation consisting in matching oneself with the requirements of the environment. One has to clearly stress here, that social adaptation according to Gough is something different than social maturity.

Sport psychology studies of the personality of athletes have often been carried out with the application of various methods, based on various theoretical assumptions. Research conclusions often contradict themselves (for a review of research results compare: Vealey 1989; Vealey 1992; Bakker, Whiting, Brug 1990). Authors of the present paper would like to get involved into the discussion about personality conditions of sport success. To that end an attempt was made to apply the social maturity index (SM) of CPI in research in the area of sport psychology. They tried to establish, whether social aspects of individual functioning exert positive influence on the efficiency of group actions, whether a positive relationship exists between the level of social maturity of athletes, members of sport teams and the results achieved by those groups.

## METHOD

### Subjects

The studied group was composed of six soccer teams from the 1st, 2nd and 3rd League (altogether 96 athletes, aged:  $x=23.09$ ,  $SD = 3.88$ ). From among teams of the second league the following four teams were studied: Stomil Olsztyn, the winner of the second group of the 2nd League, which was promoted to the higher league ( $N=22$ ; age:  $x= 23.39$ ;  $SD=4.48$ ), Bałtyk Gdynia - a team from the middle of the table, which finally ranked tenth ( $N=9$ ; age:  $x=22.77$ ;  $SD=3.88$ ) as well as Arka Gdynia ( $N=17$ ; age  $x= 21.60$ ;  $SD =2.31$ ) and Lechia Gdańsk ( $N=18$ ; age  $x=21.60$ ;  $SD=2.31$ ) - teams struggling to remain in the 2nd League, which ranked - respectively - 12th and 14th in the 1st group of the 2nd League. The last of the studied teams was Polonia Elbląg playing in the 3rd League in the Pomorze group and finally ranked in the medium range of the table. ( $N=16$ ; age:  $x=21.72$ ;  $SD=3.41$ ).

## MEASURES

### California Psychological Inventory.

The author of the California Psychological Inventory(CPI), in its Polish version known as Psychological Inventory (Inwentarz Psychologiczny), is Harrison G. Gough, professor of the California State University in Berkeley. Inspired by the research of Hathaway and McKinley on MMPI, he began research on a method which would study

the personality of normal people (and not like MMPI which studied deviations), in particular those aspects, which characterize the behaviour of an individual in social conditions (Gough 1957; Gough 1968). The basis for a development of a questionnaire were broadly conceived studies carried out by Gough and his collaborators on a sample of twenty thousand people from twenty states of the USA. In its original version the questionnaire contained 480 questions, which were included in 18 bipolar scales. One should admit, that at present there is a revised version of the inventory composed of 20 scales (Gough 1987, 1989), but in Poland the new version of interpretation is now under preparation only.

The CPI is made of 18 scales, which measure various personality traits. All scales have a bipolar character. At every pole we have two opposing psychological traits quoted by Gough while describing the low and high results of particular scales. The names of the scales were determined with the help of basic traits characterising high scores.

Gough divided all scales into four categories:

1st category is a measure of poise, ascendancy and self-assurance. It is composed of the following scales: (1) Dominance (Do); (2) Capacity for status (Cs); (3) Sociability (Sy); (4) Social presence (Sp); (5) Self-acceptance (Sa); (6) Sense of well-being (Wb).

2nd category is a measure of socialization, maturity and responsibility. It is made of the following scales: (7) Responsibility (Re); (8) Socialization (So); (9) Self-control (Sc); (10) Tolerance (To); (11) Good impression (Gi); (12) Communality (Cm).

3rd category is a measure of achievement potential and intellectual efficiency. It is made of the following scales: (13) Achievement via conformance (Ac); (14) Achievement via independence (Ai); (15) Intellectual efficiency (Ie).

4th category is a measure of intellectual and interest modes and is made of the following scales: (16) Psychological -mindedness (Py); (17) Flexibility (Fx); (18) Femininity (Fe).

Relevance and adequacy of the CPI was tested in a number of ways (cf. Gough 1957, 1968, 1987), in Polish conditions as well (Kotass, Markowska 1968). CPI has also been used many times in research of high-performance sport teams and individual athletes in Poland. (cf. Krawczyński 1995).

The CPI, from among methods devoted to studies of personality of the normal people and not the deviants, characterizes best those personality traits which determine the behaviour of an individual in social conditions. According to Gough the social maturity is considered in the present work in the area of two results:

a) in the macrodimension - social maturity index being a combination of selected Inventory scales:

28.062+0.148Do+0.334Re+0.521So-0.317Gi-0.274Cm+0.227Fx

b) in the microdimension: the Socialization scale - So.

### The Sport Result

In the presented research the sport result was understood as the final place in the table of matches at the end of the 1993/1994 season. The ranking of particular teams is presented in the section presenting the Subjects.

## RESULTS

Results of variables characterizing the personality of athletes measured according to the CPI and the Social Maturity Index (SM) are presented in TABLE 1.

The applied ANOVA variance analysis did not show any meaningful difference between the studied groups as far as the global social maturity was concerned. In the area of personality variables, however, one could observe individual relevant differences. And so the athletes of the Warsaw Legia club meaningfully differ from the athletes of Polonia Elbląg on the ambition scale (Cs) ( $p < 0.005$ ). The Legia club members in comparison with the Polonians are more ambitious and self confident, have potential abilities to acquire a good social status and to make a career. As far as Social presence (Sp) is concerned the athletes of the Arka Gdynia club differ from the athletes of the Bałtyk Gdynia club, although the difference is not so relevant ( $p \leq 0.05$ ). Better poise, spontaneity and self-assurance in social situations are the personality traits characteristic more for the athletes of the Bałtyk club than the athletes of the Arka club. On the other hand, the sense of well-being (Wb) is more characteristic for the athletes of the Stomil Olsztyn than of the Polonia Elbląg club ( $p < 0.05$ ). The sportsmen from Olsztyn are in average more energetic, brisk, ambitious, active and productive in comparison with the athletes from Elbląg. As far as Self-control (Sc) is concerned the athletes from Legia differ meaningfully from the athletes of the Lechia Gdańsk club ( $p < 0.01$ ) and the Polonia Elbląg club ( $p < 0.001$ ). The Varsavians are comparatively calmer, practical, patient, conscientious, thoughtful as well as non-impulsive and non-self-centred.

On the scale of Tolerance (To) the Legia club members differ from the Polonians ( $p < 0.001$ ) and Arka club members ( $p < 0.05$ ). They are relatively more tolerant, accepting and non-judgmental while relating to others. The scale of Good impression (Gi) relevantly differentiates the Legionists from Polonians ( $p < 0.001$ ), Stomil from Legia club members ( $p < 0.01$ ) as well as the Arka from the Polonia club members ( $p < 0.05$ ). The sportsmen from Warsaw are characterised with higher level of entrepreneurship, sociability, warmth and continuous care to make good impression in comparison with

Scales	Arka Gdynia II league		Bałtyk Gdynia II league		Lechia Gdańsk II league		Legia Warszawa I league		Polonia Elbląg III league		Stomil Olsztyn II league		F	p <	Differences between groups
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD			
Do	42,58	11,25	38,44	6,54	43,72	8,18	43,00	10,12	40,37	6,94	37,95	8,02	1,305	–	–
Cs	33,05	10,94	35,55	7,02	35,94	10,38	40,78	7,27	28,62	6,51	35,90	5,45	3,598	0,005	1)
Sy	41,11	7,46	44,11	8,31	44,55	5,76	44,71	7,76	39,75	4,18	42,81	6,61	1,444	–	–
Sp	40,11	7,18	49,55	7,71	47,00	6,78	45,07	9,73	46,37	8,18	42,77	7,70	2,564	0,05	2)
Sa	48,35	9,69	57,33	10,22	52,38	8,12	54,00	7,47	50,18	5,91	51,09	7,01	1,890	–	–
Wb	33,47	14,71	36,22	6,76	36,05	11,96	38,42	17,27	24,50	14,07	40,45	11,35	3,022	0,05	3)
Re	34,70	8,12	33,33	3,87	28,88	9,94	33,00	10,94	30,12	8,37	32,18	6,84	1,073	–	–
So	41,70	12,10	45,33	6,63	40,22	13,09	46,78	12,75	38,93	7,16	46,04	10,22	1,490	–	–
Sc	40,58	10,22	38,66	6,55	37,11	9,27	47,85	8,62	33,31	5,21	40,63	9,19	4,740	0,001	4)
Tb	29,88	7,61	31,66	5,22	32,27	10,32	39,57	9,34	26,56	8,64	33,00	8,24	3,728	0,01	5)
Gi	41,35	9,28	37,77	7,24	39,16	7,62	45,92	9,68	32,75	4,49	41,63	6,92	5,006	0,001	6)
Cm	33,23	12,61	39,11	6,17	37,50	12,92	35,14	10,38	33,18	13,57	40,63	8,80	1,313	–	–
Ac	36,76	9,70	37,11	7,63	34,16	10,77	41,64	10,45	29,87	6,99	38,09	10,50	2,610	0,05	7)
Ai	37,05	5,52	41,88	8,38	40,00	12,87	41,71	5,63	35,68	11,20	41,95	8,94	1,352	–	–
Je	22,70	9,51	31,00	6,80	28,94	14,38	34,71	10,04	19,87	12,08	29,77	9,49	3,877	0,005	8)
Py	36,11	7,63	42,88	3,91	41,88	14,43	43,14	7,62	36,81	7,23	42,27	6,97	2,000	–	–
Fx	41,47	8,89	47,66	9,51	45,83	10,35	47,21	10,57	43,12	8,26	43,68	8,63	0,977	–	–
Fe	55,47	7,36	55,77	6,53	53,44	6,98	56,64	4,97	53,81	8,85	55,13	7,13	0,442	–	–
SM	46,44	3,79	47,81	3,05	54,63	4,89	47,08	4,96	46,51	2,68	46,59	3,61	0,429	–	–

TABLE 1. The Results of Arithmetic Means, Standard Deviations and ANOVA Variance Analysis of Variables from CPI and the Social Maturity Index (SM) in Studied Soccer Teams: Arka Gdynia (N=17), Bałtyk Gdynia (N=9), Lechia Gdańsk (N=18), Legia Warszawa (N=14), Polonia Elbląg (N=16), Stomil Olsztyn (N=22).

1) Legia-Polonia ( $p < 0,005$ ) 2) Arka-Bałtyk ( $p \leq 0,05$ ) 3) Polonia-Stomil ( $p < 0,01$ ) 4) Lechia-Legia ( $p < 0,01$ ); Legia-Polonia ( $p < 0,001$ ) 5) Legia-Arka ( $p < 0,05$ ); Legia-Polonia ( $p < 0,001$ ) 6) Arka-Polonia ( $p < 0,05$ ); Legia-Polonia ( $p < 0,001$ ); Stomil Legia ( $p < 0,01$ ); 7) Legia Polonia ( $p < 0,05$ ); 8) Legia-Polonia ( $p < 0,005$ ); Arka-Legia ( $p < 0,05$ ).

their colleagues from Elblag and Olsztyn. The Arka club athletes have a similar advantage over the Polonians.

At the next two scales, where significant statistical differences were observed, Legionists differed from the Polonia Elblag athletes as far as the achievement via conformance (Ac) ( $p < 0.05$ ) and Intellectual efficiency (Ie) was concerned, and from the sportsmen of the Arka Gdynia club according to the latter scale. Again, like in the former case, the soccer players from Warsaw appeared to be more capable, cooperative, efficient, organized, persistent and diligent, stressing aims meriting social respect (achievement via conformance - Ac), as well as more efficient, clear-thinking, planful, progressive as well as thorough and inventive - in sum - more intellectually efficient (Ie).

Summing up the existing relevant differences between soccer teams as far as the measured personality variables are concerned one has to observe, that the athletes from the Legia Warsaw Club are in comparison with other teams the most socialized, mature, ambitious and intellectually efficient. The athletes from the Polonia Elblag club are located at the relatively opposing pole.

#### DISCUSSION AND CONCLUSION

In the present discussion the authors adopt the generally accepted assumption that under conditions of training and sport activity one may encounter various psychical states, the intensity of which depends on conditions and character of the sport activity and personality traits of an athlete. They relate the group personality profiles of particular teams developed as a result of the research project to the sport performance level looking for relationships, which would allow to more precisely characterize the studied relations. These relations seem to indicate a positive relationship between the general social maturity of the athletes of sport groups and the results they achieve. In spite of the fact that no relevant differences between levels of global social maturity indexes were measured, even a superficial look at the results achieved in the area of differences between the dimension of group profiles of particular teams allows to perceive and describe differences between the soccer teams. In those teams 8 out of 18 dimensions of the Gough's test meaningfully differentiated particular teams. One may include among them the ambition, sociability, sense of well-being, self-control, tolerance, good impression, achievement via conformance and intellectual efficiency. It should also be added that in 12 out of 13 situations where differences were identified, the enumerated personality dimensions characterised teams with a higher success status, what can hardly be considered as purely coincidental. Particularly eminent is the difference between the personality traits of Legia Warszawa and Polonia Elblag club members, i.e. between the leader of the 1st League and a representative of the 3rd League. The athletes from the Legia Warsaw club appeared to be more socialized, mature, ambitious and intellectually

efficient. How can one relate those results to the specific character of the soccer game? The results of analysis of soccer presented in literature indicate that the dynamics of activeness and efficiency during the game process reflects the personality traits of the player, gives the opportunity to assess the degree of development of his volitional features, responsibility and start emotions. It also testifies about his psychical preparedness to the contest, indicates the relevance of subjective psychical states of the athlete before and during the game. That is why the postulate is formulated about the necessity to remember about individual features of soccer players and specificity of their sport activity during the game, and the need of psychological preparation to the expected match (cf. Gagayeva 1973). From our own research one can clearly infer coexistence of personality traits related with social functioning relevant for activity and sport efficiency and a high rank in the table of the soccer league.

Future research in the area of sport psychology over psychosocial efficiency of sport teams should take into consideration social elements of personality, related in particular with the so-called social maturity.

#### REFERENCES

- Bakker, F.C., Whiting, H.T.A. & Brug, H.J.H. van der (1990). *Sport psychology: Concepts and applications*. Chichester, New York, Brisbane, Toronto, Singapore, John Wiley & Sons.
- Gagajewa, G.M. (1973). *Psychologia gry w piłkę nożną (Psychology of football play)*. Warszawa, Sport i Turystyka.
- Gough, H.G. (1957). *Manual for California Psychological Inventory*. Palo Alto, California, Consulting Psychologists Press.
- Gough, H.G. (1965). Conceptual analysis of psychological test scores and other diagnostic variables. *Journal of Abnormal Psychology*, 70, 4, 294-302.
- Gough, H.G. (1966). Appraisal of social maturity by means of the CPI. *Journal of Abnormal Psychology*, 71, 3, 189-195.
- Gough, H.G. (1968). An interpreter's syllabus for the California Psychological Inventory. P., McReynolds (Ed.). *Advances in psychological assesment, vol. 1*. Palo Alto, California, Science and Behavior Books.
- Gough, H.G. (1987). *California Psychological Inventory administrator's guide*. Palo Alto, CA, Consulting Psychologists Press.
- Gough, H.G. (1994). Theory, development, and interpretation of the CPI socialization scale. *Psychological Reports*, 75, 651-700.
- Kottas, A. & Markowska, B. (1968). *Inwentarz Psychologiczny H. G. Gougha. Opracowanie monograficzne. (California Psychological Inventory by H.G. Gough: Elaborate)*. Warszawa, Pracowania Psychologiczna PAN (type script).

- Krawczyński, M. (1995). *Spójność grupowa a dojrzałość społeczna. Studia z psychologii sportu. (Group cohesion and social maturity. A study in sport psychology)*. Gdańsk, Wydawnictwo Uczelniane AWF.
- Vealey, R.S. (1989). Sport personology: A paradigmatic and methodological analysis. *Journal of Sport and Exercise Psychology*, 11, 216-235.
- Vealey, R.S. (1992). Personality and sport: A comprehensive view. T.S., Horn (Ed.). *Advances in sport psychology*. Champaign, IL, Human Kinetics.



## NEW APPROACHES IN STABILIZING SPORTSMEN'S COMPETITIVE ACTIVITIES

V. Malkin, L. Rogalewa Ural State University, Ekaterinburg, Russia

The problem of stabilizing sportsmen's psychic state during the competitive activities is one of the most important in sport psychology.

In solving this problem different methods of selfregulation to be very useful for the vegetative system of the organism are being used. They are helpful for the sportsmen's motor in the course of the competitive activities. However its effectiveness in stabilizing the psychic state of sportsmen is not high enough. This is because these methods of regulation switch on mainly the mechanism of physiological level. It appears that the increase of the stabilizing effect in psychoregulation can be achieved by switching on the mechanism of psychological level.

With this aim in view there has been worked out a system of psychological effects - psychoforming training aimed at the formation of motivated, emotional, purposeful sets. In the course of their formation and actualization some emotional and motivational spheres of a personality (strengthening of success achievement, reduction of personal alarm, formation of confidence emotion) have been reorganized. At the same time it has been noticed the blocking of sets inadequate to competitive sets of sportsmen and a switch over from the conscious level to the unconscious level of regulation. The theoretical basis of the elaborated system was the postulates on the regulating and stabilizing role of sets in the process of man's behaviour and activities.

The results showed rather high effectiveness of the psychoforming training as a means of stabilizing the psychic state of sportsmen in the period of the competitive activities.

Three programmes were used. First one was aimed at forming directing instruction for realization of necessary programmes.

This programme includes relaxation and exercise on concentration. Psychological background is concentration - calmness-selfconfidence.

First motivated autosuggestion and at the end imperative autosuggestion were used for forming this instruction.

Second programme was aimed at forming instruction system (includes motive, emotional and aim instructions).

Introspection was used for this purpose ("what I want", "what I can", "what I must do", "I what" turned into "I can").

Visual presentation, information, selfpersuasion, selfcontrol were means of formation.

Third programme was aimed at formation of individual sportsmen's programmes.

## PSYCHOLOGICAL CHARACTERISTICS AND DECISION MAKING IN TOP LEVEL SAILING

Luís ROCHA<sup>\*</sup>; Duarte ARAÚJO<sup>\*\*</sup> & Sidónio SERPA<sup>\*\*</sup>

<sup>\*</sup>Portuguese Sailing Federation

<sup>\*\*</sup>Technical University of Lisbon

Faculty of Human Movement

(Laboratory of Sport Psychology)

**KeyWords:** decision making, , cognitive sport psychology, sailing, top level characteristics

### INTRODUCTION

Thill in France (1981) and Paula-Brito in Portugal (1973), were two of the first psychologists to work with sailing, the first claiming that this is a sport which requires a high cognitive maturity, both social and affective to obtain high returns (Thill, 1983). The sporting success (Thill, 1983) is essentially conditioned by the aptitude of the user to assimilate the variability of involvement and in putting in action the available information. In this line of thought, Porte (1994), through the characterization of psychological capacities inherent to sailing, was discriminating cognitive aspects, affective, motivational and social, the first being the most often referred to.

Despite decision making being an inherent process relative to sport, one still knows little about it. Meanwhile there are certain aspects that may be identified and influenced. Besides that, in sport, the type of decision varies, depending on the nature of the sport practice, as well as the demands regulations impose on the competitor.

In this sense, some authors (Singer, 1980; Ripoll, 1994), based on the classification of Poulton (1957) in open and closed skills, classify different sports, distinguishing those that are internally paced and those externally paced. Sporting activities may allow the individual to internally paced movement (emphasis on the response; consistency of the return), or that, on the other hand they may be regulated by the situational demands of the task (emphasis on the situation; the situation regulates the athlete). Sailing may be, therefore, an externally paced sport, due to the fact that it is being regulated by the adversary and by geophysical agents. By geophysical agents, we include all natural agents that affect the earth surface. But, in certain occasions, sailing is also internally paced. These occasions are characterized by a stabilization of the influence that external conditions exert on the boat itself.

According to Thill (1983) sailing is an "informational" form of sport. Decision making, being a choice between many possible acts (Maturana, 1979), is inherent to uncertainty of both the informations one has

access to and of its results, the first being related to the complexity and the dynamics of the medium: the number of alternatives is constantly being redefined, according to the sequence of events (Lacombe, Sarrazin & Alain, 1986). The consequences of each decision will influence future decisions, these being judged in accordance with their risk level (whether strategic, or physical). Interacting with these factors are the characteristics of the individual, as personal preferences or subjective expectations, which may influence decisions (McGuire, 1976; Ross, 1977, in Tenenbaum & Bar-Eli, 1992).

The present training demands (intensity and toughness) and those of competition (emphases of anxiety whether through personality profile of the athlete or by the ancionic behavior of the coach), need to take in to account the specific way in which each individual deals with those situations in order to optimize his performance (Thill, 1983). This analyzing from personal and motivational characteristics of the athlete to the cognitive ones.

A fundamental aspect of decision making and which also distinguishes experts from beginners, consists of the repetition that situations and decisions inherent to them assume. The number of times that several situations are lived create a series of routines and allow the use of other alternatives to ease the decision. Besides that, according to Abernethy (1994), as the expert, besides a better selection of information, are triggered the usual patterns of useful information, these being already automatically controlled. This author states that the investigation tends to approve that expertise specific to the task, not being distinguished by general measures.

Following this line of thought, the studies of Thill (1981, 1983) attempt to specify the case of sailing, finding various psychological characteristics which allow a successful prognostic to be established with high certainty. The same author, distinguishing sailors of double-crew boats, stated that although the helmsman to be the captain, the crew should be considered as decision agents, capable of taking over the tactic and velocity of the boat, and not only as collectors of information acknowledging the helmsman of changes in weather conditions or of the adversaries' positions (Thill, 1981). The crew seems to be more sensitive to exterior stimuli. His propensity to exteriorization favorably conditions the collection of information and creates greater availability for tactical activity (Thill 1981, 1983; Rocha & Serpa, 1994).

From the moment in which the decision is taken by the crew member, independent of their function in the boat, is one of the primary factors of success, we attempted to qualitatively characterize it and to relate it to its psychological characteristics, namely the cognitive, of the respective crew member. In order to do this, we formed three groups, through a ranking between athletes from the national team, purging the group which was classified in the middle, in order to distinguish those of a higher level from those worsely classified.

## METHODS AND MATERIALS

### Subjects

### Subjects

Subjects were 15 male sailors with ages between 17 and 36 (means 21) and distributed in the following classes: 470 (4, two helmsmen and two crews), LASER (5), FINN (2), STAR (2, two helmsmen) and MISTRAL (2). All of the sailors belong to the Olympic Team Sailing Team.

### Methods

#### 1-Specific sporting tests

CABI- Coach's Anxiogenic Behaviours Inventory (Serpa,1995). It evaluates the attitudes of the coach which create anxiety upon the athlete under competition situations.

SOQ- Sport Orientation Questionnaire (Gill,1993). It evaluates the motivation of the athletes to practice sport, being composed of three dimensions: competitiveness, victory and desire to succeed.

TAIS- Test of Attentional Interpersonal Style (Niedeffe, 1976). It evaluates the intentional behaviour in the interpersonal characteristics. We used the reduced version, made of six dimensions: Broad-External Focus of Attention (BET), Overloaded by External Information (OET), Broad-Internal Focus of Attention (BIT), Overloaded by Internal Information (OIT), Narrow Focus of Attention (NAR), Reduce Focus of Attention (RED).

QPS- Sports Personality Questionnaire (Thill, 1983a). It evaluates the personality in function of 14 dimensions psycho-affective distributed throughout 340 issues: Motivation, subdivided into intrinsic and extrinsic motivation (DR; DR1; DR2); psychological endurance (PE); Velocity/intensity (VI); Competitiveness (CP); Control of the Activity (CA); Risk Taking (RT); Emotional Control (EC); Psychological Resistance (PR); Introversion/Extroversion (EI); Dominance (DO); Aggressiveness (AG); Sociability (SO); Cooperation (CO); Desire to cause a good impression (ES).

#### 2-Tests of General Cognitive Evaluation

-The attention concentrated was measured by the test Toulouse Piron (TP), which characterizes the Velocity (Capacity of completion of task), the exactitude (capacity of concentration) and the resistance to fatigue. The relation between them we obtain the attitude of the individual when confronted to mental efforts.

-The perception was evaluated according to its speed by the test Identical Figures of Thurstone (F2).

-The memory, being appreciated by its capacity of storage in the short term in relation to visual and auditive informations, was subject to the tests MENVIS-MV2 (visual Memory) and MAVO (Auditive Memory).

-The intellectual returns, or more specifically, the "factor G of intelligence" was characterized in general abstract terms by the test Progressive Matrices of Raven (PM-38).

-In the Polireactionmetre (TR) through the informatic model of Pierre Dufour - PD 13 - (1989/90) it was possible to evaluate the response to 32 consecutive stimuli with the following peculiarities:

- a) Simple Time of Reaction (V) as an answer to visual stimuli.
- b) Time of Choice Reaction as an answer to auditive/visual stimuli (AV) and visual/visual (2V2);
- c) Diffused Attention (DV2) evaluated in relation to it's velocity and exactitude, as a response to visual stimuli in three colours.

-Through the Shultz Table it was possible to evaluate the attention distributed (AT. Dist).

### 3-Evaluation of Decision Making

To comprehend which would be most effective way of qualitatively evaluate the decision making of the crew, we start by creating an analysis of the task. This analysis followed the Method of Critical Incidents of Flanagan (1954, in Mucchielli 1979) and attending to the analysis of the task created in the sporting ambit thought of by Carriere & col, (1976). From this analysis it was possible to take the situation-problem, as well as a probable sequence throughout the regatta.

Having said this, basing ourselves on the work of Hanke (1987), developed the guide to semi-structure an interview in which it is asked that the sailor should report his behaviour, during a regatta, he will be faced with several situation-problems which have been referred to previously.

Once the 15 semi-directed interviews have been completed, their content is analysed in accordance with it's construct (Berelson, 1952).

**-Ranking.** We elaborated a ranking for these 15 sailors, having consulted the five experts in sailing (National coaches of different modalities, together with former coaches).

Similarly to the ranking of Olympic classes from IYRU, the ranking was composed of international competitions, which have had different coefficients according to the difficulty and the number of participants.

In the eyes of the IYRU, only the six best results of the current Olympics were acknowledged. Only one of them, could be of 1992, in order to valorize the most recent results, coinciding with the time in which these sailors were psychologically evaluated. An athlete who hasn't had at least six point-worthy international competitions, would only sum up the possible points.

### Procedures

The specific tests of the sport were applied, during a week-end, having been responded to and delivered with the current applicator. The tests relative to the cognitive evaluation were accomplished by the laboratory, during one morning, by groups of 4 to 5 sailors. The interviews took place on an individual

basis, always by the same interviewer in private places, but where an athlete would feel comfortable and always using the same guide.

After the elaboration of the ranking, we made groups with the five best and five worstly qualified. In this way it is possible to compare the differences between the psychological characteristics and the quality of the decision made, co-relate these characteristics and characterize the pupil's being studied.

The statistical approach consisted in the comparison non-parametric through the Fisher's F and the correlations "r" through the Bravais-Pearson calculus.

## RESULTS

**TABLE 1. Means and most Relevant Comparisons Between First Five and Last Five on Ranking**

		GROUP A	GROUP B	COMPARISON BETWEEN GROUP A AND B	
		FIRST FIVE OF RANKING	LAST FIVE OF RANKING	F	P-value
<b>RANKING SCORE</b>		<b>4381</b>	<b>1967</b>	<b>46,1</b>	<b>0,001</b>
SCAT		17,80	21,6	2,14	0,24
S O Q	TOTAL	4,48	4,28	3,00	0,16
	<b>VICTORY</b>	<b>4,17</b>	<b>3,87</b>	<b>6,36</b>	<b>0,05</b>
	COMPET.	4,63	4,43	2,20	0,23
C A B I		2,89	2,57	4,58	0,08
T A I S	<b>BET</b>	<b>3,20</b>	<b>3,70</b>	<b>11,0</b>	<b>0,02</b>
	OET	2,30	2,20	1,63	0,32
	BIT	3,20	3,60	2,13	0,24
	NAR	3,70	3,30	2,92	0,16
Q P S	RED	2,30	2,80	3,50	0,13
	DR	18,60	20,20	2,94	0,16
	<b>DR2</b>	<b>9,40</b>	<b>9,80</b>	<b>5,88</b>	<b>0,05</b>
	CP	13,60	12,40	3,12	0,15
	CE	16,20	13,20	1,05	0,48
	DO	11,60	9,60	1,34	0,39
T P	DS	9,80	12,80	1,76	0,30
	VEL	279,20	260,40	4,03	0,10
	<b>EX *</b>	<b>7,56</b>	<b>9,42</b>	<b>5,51</b>	<b>0,05</b>
RF		-2,80	-6,80	1,64	0,32
AT dist		144,40	131,40	1,44	0,37
MENVIS		16,60	17,20	2,21	0,23
T.R.	VA *	42,41	44,81	3,00	0,16

**Bold:** Significant comparisons (P = .05)

\*Lower values means better performances

Table 1 shows the differences between the result of the tests according to the position in the ranking (first five and last five). We can see from the four variables, with significant differences the SOQ - victory and the TP-ex favour the first (group A). We can still notice, that the CABI comes close to that difference. On the other hand the dimension BET of TAIS, and the dimension DR2 of QPS, favour the last five of the ranking (group B).

**TABLE 2. Correlations With the Variables Having Significant Differences (Group A)**

TP ex	SOQ victory	CABI
Mavo = -.768	VA = -.870	TP rf = .801
Menvis = -.907	EP = .762	OET = .967
PM-38 = -.965		SCAT = .942
SOQ compet. = -.795		SO = .952
DR2 = -.838		DO = .765

We can say that the exactitude relative to the capacity of concentration is inversely related with all other variables, which indicates that the more concentrated the individual (with lower value of TP-ex) the better is his memory and intelligence. This variable is also related to motivation. Motivation whilst being directed towards victory is also connected to psychological endurance.

On the other hand, the perception of ansiogenic behaviour by the coach, by means of the athlete is inherent to raise the resistance to fatigue and occurs when the athlete has patent traces more accentuated by anxiety, as well as when it focusus it's external attention on irrelevant stimuli.

**TABLE 3. . Correlations With the Variables Having Significative Differences (Group B)**

BET	DR2
At. Distr. = -.763	SCAT = .844
OET = .800	QOD compet. = -.863
CE = -.814	RED = -.855
DO = -.800	DS = .774

When considering group B, one verifies that the wide external focus is accompanied by difficulties in discriminated the relevant clues (OET) and, also, through a minor success in tasks where the distribution of attention (At. distr.) is required. We can assume that the BET is correlated with the absence in trust and with easy mood swings, and changes in energy level. Related to extrinsic motivation, we can observe in table 3 that it is connected to a rising trait in anxiety, as well as to the need desire of social acceptance, but inversely to the motivation towards the competition, which according to Gill (1993), manifests the pleasure for sporting practice on it's own. All this added to the fact that these sailors show certain difficulties in reducing their focus of attention.

## DISCUSSION AND CONCLUSIONS

By claiming that group A distinguishes itself from group B by the fact that it's motivation is orientated to victory, we are taken to believe that the first attempt to reach, in each case, competition of success level that has characterized it's previous events in the sport. It has, therefore, higher expectations. This attitude is reinforced by perseverance and determination (EP) which, according to the correlations (Table 2), rise with orientation towards victory. We may claim a faster discrimination of visual and auditive stimuli, which, according to Table 1, are, on average, higher in group A than in group B.

The sailors of group A distinguish themselves through a higher concentration level, in other words, they pay more attention to details and respond to a higher number of relevant information. The total of these small advantages, such as the appropriation of the sail to small wind oscillations or the way in which to handle each wave, create in the end the difference from other competitors. In addition to what we have mentioned, the better the concentration, the better the visual memory, which will allow the memorization of the

different positions of other boats, which in turn permit a re-definition of the route. The most significant correlation which concentration span presents is related to intelligence. This means one has better processes of choice to identify the most useful information for one's success. According to the information we have collected from the athletes, we tend to suggest that the elite sailors deduce where they can better find the most important information. This, together with the visual memory correlation gives us the possibility to claim that the visual information is related with the choice information. We can also say that these sailors attempt to retain the information that is transmitted by others (MAVO).

This search for preciseness may be related to the not losing of the high status acquired (correlation with the DR2), on the other hand may feel gratified by the competition (correlation SOQ competitive), by the fact that in this one it makes few mistakes.

Relative to the influence the coach may have over the behaviour of the athlete, due to the low trace of anxiety characteristic of group A (17,8 which equals 20% for the Portuguese sporting population), these may bring rise to higher ansiogenic behaviour in the coach. This may be due to the high status of the athlete or to it's apparent calm, leading the coaches to, even unconsciously, behave in a way to create a rise in anxiety. The apparent calm referred to may be at the pivot of the rise in fatigue resistance (TPrf) which is claimed to be correlated with CABI, in these athletes of group A. On the other hand, we face the correlation between CABI and the anxiety profile (SCAT) which may be due to the greater sensitivity for ansiogenic behaviour which more anxious individuals appear to have. If we have this with the socializing characteristics (SO) found, which translate a greater sensitivity to significant people around the crew member, we reinforce the idea previously mentioned. Another aspect is related with the characteristics of dominance (DO) which are related with CABI. This may be due to a dispute between the elite sailor and the coach for the leader job. By noticing the highly significant correlation which CABI has with the overload of external information (OET) in which we claimed in the interviews with the athletes, we are lead to believe that those behaviours of the coach are upsetting to the emotional state which may lead to distortion of objective information and to a less efficient decision.

The crew members of group B show a higher extrinsic motivation of group A, this meaning that they have a greater desire for success to upgrade their social status (Thill, 1983a), we are lead to believe that their sailing motivation is due to the prestige the sport has the possibility to offer. But, other explanational reasons for this difference may be related to a lower quality of navigation. Therefore, what may lead them to persist with sailing may be a result of the social prestige this may bring. Bringing out this aspect, exists the fact that sailing is in Portugal a sport inherent to a high-medium socio-economic status. Related to this, is the desire to create a good image (DS). Inherent to these reasons is the correlation with the SOQ competition, revealing that these athletes have a lower pleasure in competitive situations, (Gill, 1992). For the same reasons, we may justify the difficulty these sailors show in creating a reduced focus of attention.



We state also that the rise of this motivation is connected to the rise in anxiety profile, and the fact that the individual's image upgrade created for others, may make one feel more anxious. The recognition of his success depends on other's opinion, this may lead to his anxiety to show due to the fear of disappointing his personal medium. His anxiety may not be controlled due to the fact that he is more faced to the exterior. We know that the sailors of lower quality, in ages of formation, are characterized by broad external focus (Rocha & Serpa, 1994), as we stated earlier, sailors of group B are less precise (Table 1 TPex), and so we are led to believe that this greater external focus is due to the fact that they are not capable of restricting the important informations. In addition to this, we may look at the fact of BET being allied to the overload of external informations, confirming the reactions that previously pointed out. In the comparison between the groups (Table 1) we may see that the NAR (narrow focus of attention) averages are greater in group A, where as in the RED, the figures of group B are higher.

Bringing out what was said, we add the fact that BET is related to the distributed attention, showing the difficulty of the group's sailors and selecting important information, amongst other information. We see that, related to this characterization, these sailors have a low emotional control (CE), and give away to their subjective expectations, due to their greater mood alterations. Inversely related to BET is dominance (DO), which means a lack of confidence, a tendency to follow others. In this sense, the sailor, due to lack of confidence in information he receives, keeps searching for more information. In other cases, and for the already mentioned reasons relative to personality, the sailor may follow the regatta of other sailors which he finds more efficient, not to surpress his lack of self-confidence.

As a conclusion, we tend to affirm that the elite sailors place more emphasis into a personal comparison and on competition victory.

The ansiogenic behaviours of the coach may influence the decision making powers of the athlete. The higher motivation of athletes, not of the elite class, is related to aspects not of the actual task, but to the desire to reach a particular social status.

From the obtained differences between the groups, in terms of concentration capacity and broad external focus, we may conclude that, sailing, being an externally paced sport, besides an broad external focus, this sport requires the capacity of restricting the focus of attention.

## REFERENCES

- Abernethy, B. (1994). The nature of expertise in sport. In S. Serpa; J. Alves and V. Pataco (Eds.), *International Perspectives On Sport And Exercise Psychology* (pp. 57-68). Morgantown: Fitness Information Technology, Inc.
- Berelson, B (1971). *Content analysis in communications research*. New York: Hafner Publ. ;Co., (1952).
- Brito, A.P. (1973) - Psicologia Desportiva: Vela, um Ensaio Sobre o Mundial de Vaurien. *Educação Física e Movimento*, 19, (pp. 17 - 30) Lourenço Marques.
- Carrière, L. & Breton, G. (1976). L'analyse de tâches et les activités sportives. Une exemple: le Volleyboll. *Mouvement.*, 2, mars, pp.

## Psychological Characteristics and Decision Making in Top Level Sailing

- Gill, D. (1993) - Competitiveness and Competitive Orientation, in R. Singer, M Murphey & L. Tennant (Eds), *Handbook of Research on Sport Psychology*, (pp. 314-325). New York: Macmillan Publishing Company.
- Hanke, P. (1987) - Improving decision making in critical incidents - a cognitive teacher and coach analysis and training program. *Proceeding World Conference Human Kinetics* (pp.177-179). Lisboa: UTL-FMH.
- IYRU World Sailing Lists - Olympic Classes (1994). *Press release*, 8 de December.
- Lacombe, D. Sarrazin, C. & Alain, C. (1986) Decision making in sport: an information *Practice*. (pp. 179-189). Orebro Sweden: Veje Publ, Inc.
- Maturana, H. (1979). Stratégies cognitives. In E. Morin & Piatelli-Palmarini (Ed.), *Le cerveau humain - l'Unité de l'Homme*. Paris: Edition du Seuil.
- Nideffer, R. (1976) Test of attentional and interpersonal style. *Journal of Personality and social psychology*, 34, 394-404.
- Porte, B. (1994). Analyse de la tâche psychologique: recherche de profils de capacités chez des régatiers de haut niveau. In M. Audiffren & G. Minvielle: *Actes du congrès international de la société française de psychologie du sport* Poitiers: UFR APS
- Poulton, E. (1957). On prediction in skilled movements. *Psychological Bulletin*, 6, 476-478.
- Ripoll, H. (1994). Cognition and decision making in sport. In S. Serpa; J. Alves and V. Pataco (Eds.), *International Perspectives On Sport And Exercise Psychology* (pp. 69-77). Morgantown: Fitness Information Technology, Inc.
- Rocha, L & Serpa, S. (1994) *Caracterização psicológica dos praticantes de vela: contribuição para a detecção e orientação de talentos*. Monografia de fim de curso. Universidade Técnica de Lisboa. Faculdade de Motricidade Humana.
- Serpa, S. (1994). Coach's Anxiogenic Behaviours Inventory. Non- published manuscript. Lisbon: Technical University of Lisbon- Faculty of Human Movement.
- Singer, R. (1980). *Motor learning and human performance* (3rd ed.). New york: Macmillan.
- Tenenbaum, G. & Bar-Eli, M. (1993). Decision making in sport: a cognitive perspective. In R. Singer, M. Murphey, & L. Tennant (Eds.), *Handbook of research on sport psychology* (pp. 171-192). New york: Macmillan Publishing Company.
- Thill, E. (1981) - La Constitution des Equipages en Voile: definition des profils psychologiques des barreaux et des équipiers. *Cinésiologie*, jun, 193 -200. *Compétition sportive et psychologie. Journées Européennes de Psychologie du Sport* (pp.77 - 94). Ed Chiron
- Thill, E. (1983a) : *Manuel - Questionnaire de Personnalité pour Sportifs*- Q.P.S. de E.Thill.Paris, Editions du Centre de Psychologie Appliquée.

## NEW CONCEPTION OF A PERSONALITY APPLIED TO SPORT PSYCHOLOGY

V. Strelkov, A. Bystrov  
Archangelsk, Russia

**Key words:** method, personality, model, acupuncture, relationships.

The sport of today is in continuous search for reserves that may considerably influence sport results. Doping and other stimulating agents are not uncommon as a means of the organism activation. But the cost of such an unnatural stimulation is too high: the body quickly gets worn out and weakens, all this resulting in short life span in sport. Thus the challenge now is to find more reliable means of physical development. And then the personality of a sportsman as a whole becomes a peculiar subject of the scientific analysis.

The idea of an personality in itself is not particularly new. A new understanding of an personality requires then the exact reasoning and argumentation to ustify this approach. In this case it would be well to refer to the initial methodological position that differentiates the features for the personality analysis (see Table 1).

**TABLE 1. The Model of the Method in Psychology**

Components of Method Levels of Methodology	Principles	Notions	Categories
Structural	Determinism	Organism	Energy
Functional	Dialectics	Image	Reflection
Qualitative	Historicism	Subject	Communication
Meaning	Systematism	Personality	Activity

They follow from the understanding of the method as a combination of a number of principles - initial postulates; notions specifying them; and, at last, generalisations of a higher order - categories - that are derived from them. The method also helps to interpret the genesis of phenomena as their attempt to make up a definite structure, capable of movement and development, having distinctions

### **New Conception of a Personality Applied to Sport Psychology**

from other similar structures, and aimed at finding its own essence of being. In fact, we treat the method as a system of a special kind that comprises a number of levels.

It includes a number of elements that can be described in the following way. Ontologically, any living phenomenon is viewed upon as being determined by outer and inner conditions of the being. Being an organic whole, it is capable of coming into relations with the environment, i.e. displaying activity. An increasing degree of activity causes aggravation of outer and inner contradictions resolving of which results in movement and development of the phenomenon. A special source of contradiction can be singled out which can be defined as "the image". This is the wholeness, the inherent characteristic of an organism. It fixes the movement conditions of the phenomenon in the environment and provides the necessary information about the latter. The accuracy of the movement parameters is obtained through projection, reflection of the image onto the outside world. The phenomenon is capable of regulating its movement which enables it to get organized together with the similar phenomena, to acquire significance, to become a subject and to proceed into the historical plan. Consciousness appears. In this case the phenomenon manifests itself not only as the organism which is aware of the conditions of its movement, but also as a real subject of the historical process. Being capable of conscious orientation, the phenomenon as a subject of the historical process begins to coordinate the movement trajectory mentally, i.e. theoretically, specifying certain parameters through communication with the similar phenomena. It is only then that the phenomenon acquires systematic qualities through "signification", i.e. allotting meanings. These systematic qualities take into account both the outer, inner and analogous. Self-consciousness appears and its bearer, the personality, appears along with it. The regulation of relationships with everything in being achieves the highest degree of perfection and it turns into creative energy and activity.

All the above-mentioned features are characteristic of the phenomenon that can be called an personality in terms of psychology (see Table 2). In this case we deal only with those features of the individual that make him a unique subject which depends upon the social conditions. It should be noted that the psychology either does not go beyond the human essence which is limited to the personological content. This is why sport as a special kind of activity becomes an expression of this human essence. The following line is made up: game - learning - sport - labour. Each of the elements is associated with a certain sphere of knowledge: game -

### New Conception of a Personality Applied to Sport Psychology

medicine, learning - pedagogics, sport - psychology, labour - philosophy. This is why we can speak of the sport and psychology as of identical and analogous phenomena and to involve psychology in the search for reserves in sports activity. It is not by chance that the today's reality testifies to a great popularity of the sport, because it is now that the man becomes aware of his historical and personological essence.

**TABLE 2. The Model of a Personality as a Subjective Phenomenon**

Components of Individuality	Experiential	Cognitive	Volitional
Levels of Individuality			
Physical	Drives	Needs	Higher nervous activity
Psychic	Emotions	Cognition	Temperament
Social	Feelings	States	Character
Thinking	Motives	Properties	Faculties

Coming back to the problem of the personality, we shall note that the phenomena related to psychology are somehow on the borderline between the inner, subjective essence on the one hand and the outer, objective essence on the other hand. The inner plane is represented by the following three spheres: motive, cognitive and volitional. The outer plane of the personality system which comprises a number of levels includes the physical being, as well as the psychic, social and thinking. As B.G.Ananyev emphasizes (1978), the systematic structure of the personality is governed by the following two principles simultaneously: the hierarchical principle, the idea of which is subordination, and the coordinating principle, i.e. the parity principle. The ideal (incentives) dominates in the inner plane and the material (physical conditions of being) dominates in the outer plane.

If we try to describe the components of the personality by analogy with the method, we will get the following picture. Drives that are biologically motivated stimuli to actions aimed at self-preservation are the starting point of the personality analysis. When thought over, certain incentives become needs, i.e. "cultivated"

### **New Conception of a Personality Applied to Sport Psychology**

drives with certain ways of their realization. Regulation of the drive-need relations is achieved through the mechanism of higher nervous activity which is viewed upon as a specific means of coordinating movements in space. Dexterity, strength, quickness, and flexibility are in this case individual means of producing movements. An increasing degree of activity in the sphere of movements leads to aggravation of inner contradictions that are resolved by a special "organ" - psyche. It helps to immediately react to variable conditions of being through emotional reaction on part of the incentive sphere. It is through emotions that all the stimuli of the outer and inner environment are responded. It is here where all contradictions are resolved which serve the source of development for the personality system coming into existence. The energy of situational incentives is involved in cognition that allow to differentiate the surroundings of the personality for its comprehension through images - from elementary sensations to higher forms of thinking. There exist a specific mechanism of the psychic regulation - temperament. It allows to periodically reverse the direction of stimulation: from the outer to the inner and vice versa. Besides, temperament contributes to signifying of everything that exists in the world. Having appeared, the sign system becomes a basis for the language, and alongside with it, for the consciousness. The consciousness of incentives transfers them into the historical plane, exiting feelings as specific steady relations to everything in being. The steadiness of feelings in the cognitive sphere is fixed as states that are long-standing thoughts about significant conditions of being. Peoples' character regulates the interconditionality of feelings and states, thus transferring the relationships between them into the sphere of communication. Only then it is possible to control the incentives systematizing them and bringing them to the level of conscious orientation of the personality, i.e. motives. The latter endow the personality with wholeness, which comprises individual properties fixed in self-consciousness. Now the personality has the possibility of creative self-realization in activity using its faculties.

Everything above-stated requires a thorough experimentation. The following is the fragment of researches conducted on sportsmen. Taking into account that the sports activity in its character represents physical movements, our interest is to find out how the energy of movements turns into steady personal relationships. The most difficult thing is to decompose the initial activity into separate components stimulating certain relationships of the personality. Eventually, this problem has been resolved by means of the instrumental technique using the "Activatiometer-6M" device.

### **New Conception of a Personality Applied to Sport Psychology**

This device allows to determine the measure of agitation of biologically active points on the body that are within 12 meridians, coming from finger tips through the head to toe tips.

As the above-indicated model suggests the personality can be viewed upon as comprising 12 certain components. We assume that depending upon the type of the physical activity there appear certain connections between the organism systems and steady personal relationships. The research was conducted upon the students of the physical training department of the Pomorsky International Pedagogical University in Arkhangelsk majoring in

- track-and-field athletics;
- gymnastics;
- skiing.

All in all, 59 students were under test that was performed in laboratory conditions. The period of researches - February-March, 1994. The following techniques were used:

- a) standardized multifactor method of the personality investigation (SMII) which is a modified variant of the MMPI test.
- b) determination of reflexological meridian activity using the device "Activatiometer SM". The activity of the meridians was measured in biologically active points (BAP) or acupuncture points projected on the skin, which provide information about a separate organ or a system.

The data obtained were then checked for correlational dependency against Spirman. Following from the data of the correational analysis it should be noted that all the ten personality parameters measured by SMII are in statistical relations with the twelve reflexological meridians responsible for the energetics of a separate organ or system.

The most significant interrelations in all groups of the students under test are found between the activity of the spleen (point RP) and a number of personal qualities. Among the track-and-field athletes of the youth age-group this organ turns out to be in positive relation with the pessimism scale ( $r=0,806$ ), and among the skiers this relation is negative ( $r=-0,649$ ). Besides, in the group of gymnasts the

### **New Conception of a Personality Applied to Sport Psychology**

relation is found between this organ and the feeling of anxiety ( $r=0,746$ ), and in the group of track-and-field athletes (girls) the relation is found between this organ and individualism (0.560). In other words, different kinds of physical exercises establish specific connections between the activity of certain inner organs and personal qualities determined by them. The spleen is characterized as a dense organ responsible for generating and keeping the energy and the blood. Following from this and the role it plays in water exchange, muscle tone, blood circulation and blood renewal we can theoretically substantiate its specific significance in stimulating certain personal qualities depending upon certain physical activity.

Thus, when doing endurance exercises, the activity of the spleen which serves a mediator between the organism and environment will be aimed at suppression of pessimism as a strive to avoid a failure. At the same time, quickness exercises will strengthen these motivation tendencies. Dexterity and flexibility exercises will cause sharpened anxiety: passive attitude, diffidence, intensified sensitivity to danger. It should be noted that the same kind of physical activity will lead to different results depending upon sex distinctions. Thus, the quickness exercises with the girls showed the connection between the activity of the spleen and individualistic qualities: isolated and contemplative attitude, analytical mind, integral perception, etc.

Among the other analogous data we can single out the connections between personal qualities and the activity of the small intestine and kidneys that are found in all groups of the sportsmen under test. Besides, certain local connections can be singled out between inner organs and personal qualities.

By and large, the investigation allows to arrive to the following conclusions:

1. There exists a possibility to build up a new conception of the personality against strict methodological assumptions that will help to determine the components of the personality system.
2. Depending upon the kind of physical activity, it is possible to influence the inner organs and systems that are found in specific relations with general qualities of the personality. Taking into consideration that the groups of the testees were



### **New Conception of a Personality Applied to Sport Psychology**

basically training certain physical qualities (endurance - skiers; quickness - track-and-field athletes; dexterity and flexibility - gymnasts), we can speak of a specific influence of the physical activity performed upon the formation of the structure of the physiological energetic systems on the one hand and the personality system determined by them on the other hand.

3. The interdependencies established are important for proper organisation of the training process in sport and classes at school. The investigation shows the necessity of the manifold influence upon the personality through physical exercises. Serious deviations in the development of the sportsman's personality are possible in case of early specialization in sport which may in the long run affect the life of the sportsmen.

**COMPARISON OF  
STUDENTS'  
PERSONALITY  
TRAITS  
PROCEEDING  
FROM SPECIFICITY  
OF THEIR SPORT  
ACTIVITY**

Malle Tõnts  
Küllli Tuvike

Tallinn Pedagogical University  
Tallinn, Estonia

# INTRODUCTION

The scientists of different countries have always been interested in the connections between sport' activity and personality traits.

A.Tiik (1977) maintains that physical education of young people was a part of popular education in Estonia as early as in the period of feudalism. Popular games and physical exercise not only developed strength, proficiency and stamina but trained will-power and taught youngsters morals, too.

Contemporary sport researchers claim that specific standards for different sports activate sportsmen's psychic and motory activity in different directions and to various extent. For example, if emphasis is on technical perfection of performance the functions controlling the sportsman's attention will be activated, if it is necessary to forestall the action of the rival intellectual functions are made active; if maximum effort is expected willpower is rendered active etc.

Sport psychologists find it necessary to investigate not only the specific problems that face a sportsman but to study how to make use of sport and physical exercise in order to improve one's personality traits and cope with everyday life. More than that, physical exercise and different sports help to lift one's spirits and reduce stress, increase self-confidence and improve social relations. (E. Eldar, 1991, U. Bergman, 1991, S. Oja, 1993 and others.)

Besides improving the physical abilities of future teachers physical education and sports are a means to

- refine skills to analyze and synthesize under the condition of quick changes;
- improve the ability to discriminate between the essential and the unessential;
- develop fast decision-making skills;
- acquire leadership, organization, performance, intercommunication, persuading etc. experience.

Such an approach to university sport and physical education has been worked out in the course of Estonian sport history. As far as we know the universities elsewhere have a different approach.

## **AIM**

To find out the specificity of students' personality traits and needs in different sports.

## **METHOD**

To determine the personality traits an Estonian variant of Cesarek-Marke Personlighetsschema (CMPS) questionnaire was used. 11 indicators of personality traits were studied: achievement (Ach), affiliation (Aff), aggression (Agg), defence of status (Dst), guilt feelings (Gui), autonomy (Aut), dominance (Dom), exhibition (Exh), nurturance (Nur), order (Ord), succorance (Suc),

and acquiescence (Acq) which characterizes the person's style, i.e. liability to agree or disagree to a statement.

A 15-point scale was used to assess the result.

The statistical analysis of the observation data was carried out by means of standard programmes and formulae. In addition to the arithmetic mean ( $\bar{x}$ ) and variational coefficient (v%) and T-criterion (Student test).

## THE SUBJECTS

The number of subjects under observation was 221.

**The bulk of the sample** consisted of 122 first-year students from Tallinn Pedagogical University (100 of them female) who were engaged in different sports four hours a week during the practical lessons of physical education as a curriculum subject. The research included body-builders, rhythmic gymnasts, swimmers, badminton and basketball players.

**The second observation group** consisted of 48 first- to fifth-year students (N=48) who did their favourite sport during extra-curriculum hours.

**The third observation group** was made up of the subjects who were the most active and well-trained among the subjects in our sample. (N=37). This group included

- light athletes (middle- and long-distance runners, competing sportsmen)
- students majoring in physical education who were physically more active than the students of other specialities both because of the specificity of their studies and their athletic qualification as well.

**The fourth observation group** consisted of 14 coaches (N=14) of the above-mentioned sports.

The present research deals with the period of 1992-1993.

## THE RESULTS

1. The CMPS-test analysis indicates that 3 variables out of 11 are the most important due to their value and position on the significance scale. These variables are: Ach, Aff, and Nur. Agg and Dst have the lowest values on the scale (9th to 11th position), the percentage of both being 80% of the indicators in all observation groups. (Table 1)

Table 1 reveals that Ord and Dom indicators show the greatest difference in attitudes between observation groups:

Ord has the 8th position on the scale (2nd-9th),  
Dom has the 7th position on the scale (5th-11th).

2. The analysis of mean indicators ( $\bar{x}$ ) of

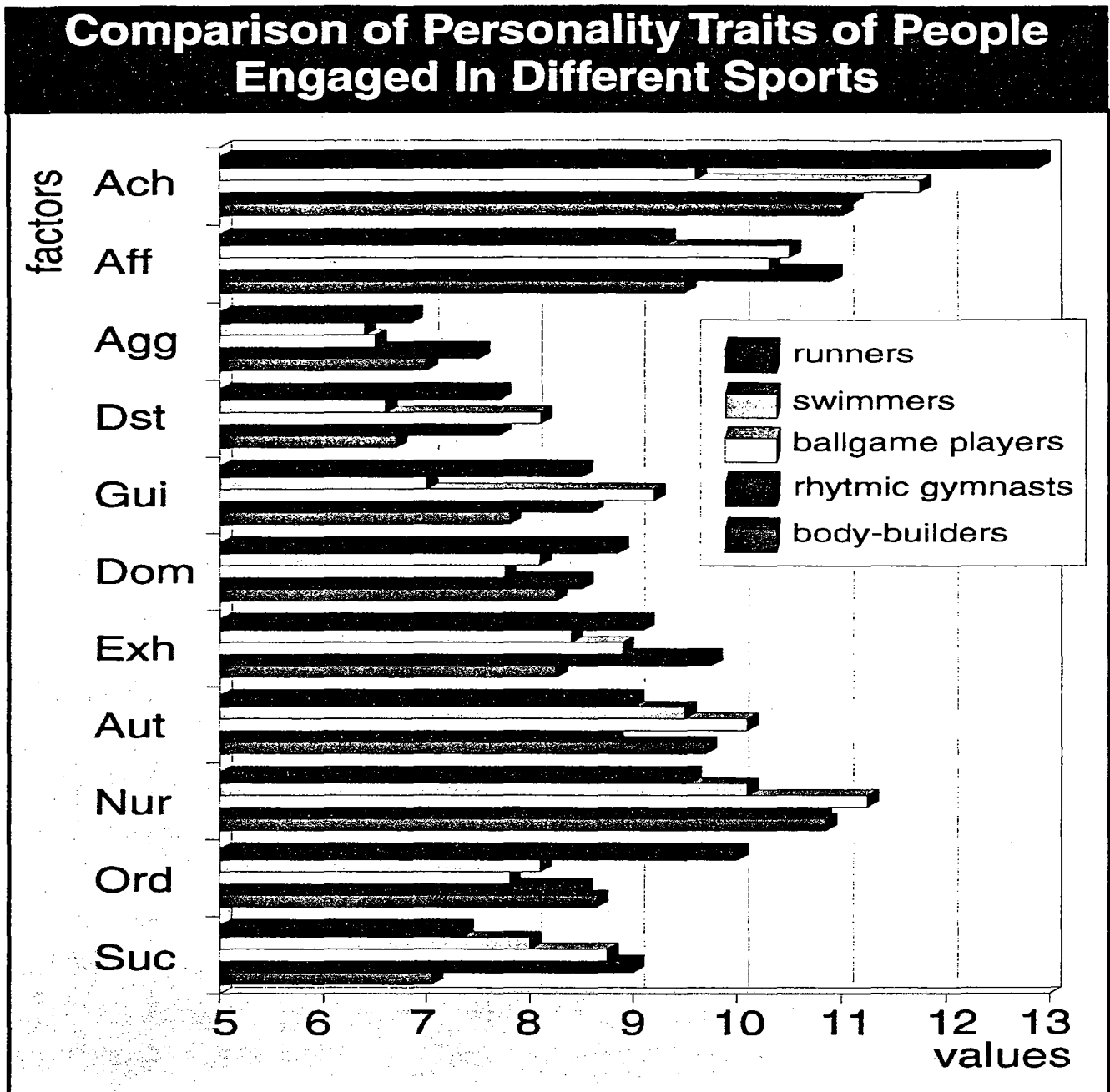
Table 1

<b>Significance Sequence of Variables on the Scale</b>											
position on the scale	variables										
	Ach	Aff	Nur	Aut	Ord	Exh	Gui	Suc	Agg	Dst	Dom
1.	60	20	20	-	-	-	-	-	-	-	-
2.	20	30	40	-	10	-	-	-	-	-	-
3.	20	20	30	20	10	-	-	-	-	-	-
4.	-	20	10	50	10	10	-	-	-	-	-
5.	-	10	-	-	20	30	10	20	-	-	10
6.	-	-	-	30	5	30	-	-	-	-	35
7.	-	-	-	-	20	-	45	10	5	-	20
8.	-	-	-	-	15	20	15	30	5	10	5
9.	-	-	-	-	10	10	30	10	20	10	10
10.	-	-	-	-	-	-	-	20	20	50	10
11.	-	-	-	-	-	-	-	10	50	30	10

observation data of different sports shows that no groups have the identical profile of personality traits. Still, similarity could be traced in the value and significance sequence of some variables (Figure 1).

- Ach is the variable of the highest value for all observation groups. It is quite understandable, for achievement is a general human need which is a source of personal activity.
- The mean Ach indicators of the CMPS-test among Estonian students are 10,2 (Females) and 10,9 (Males). Our relatively more athletic sample revealed higher indicators ( $\bar{x}=11,0\div11,75$ , except swimmers).

Figure 1



- The differences in Ach indicators between different sports are statistically irrelevant in our sample. Only runners have Ach=12,9 ( $p>0,05$ ) which is the highest indicator. Runners also have the highest athletic qualification (competing sportsmen).



- Individual values of Ach (v%) in different groups are quite high, within  $22,2 \div 34,9$ .
- As compared to other factors Nur indicators are relatively high in all observation groups. ( $9,55 \div 11,25$ ). Thus, CMPS-test reveals the specificity of our sample (students of pedagogical university!). It presumes such qualities as caring, empathy etc. in future teachers.

3. Affiliation is considered to be one of the needs which makes people go in for sports. Our research data reveal the same (Table 1).

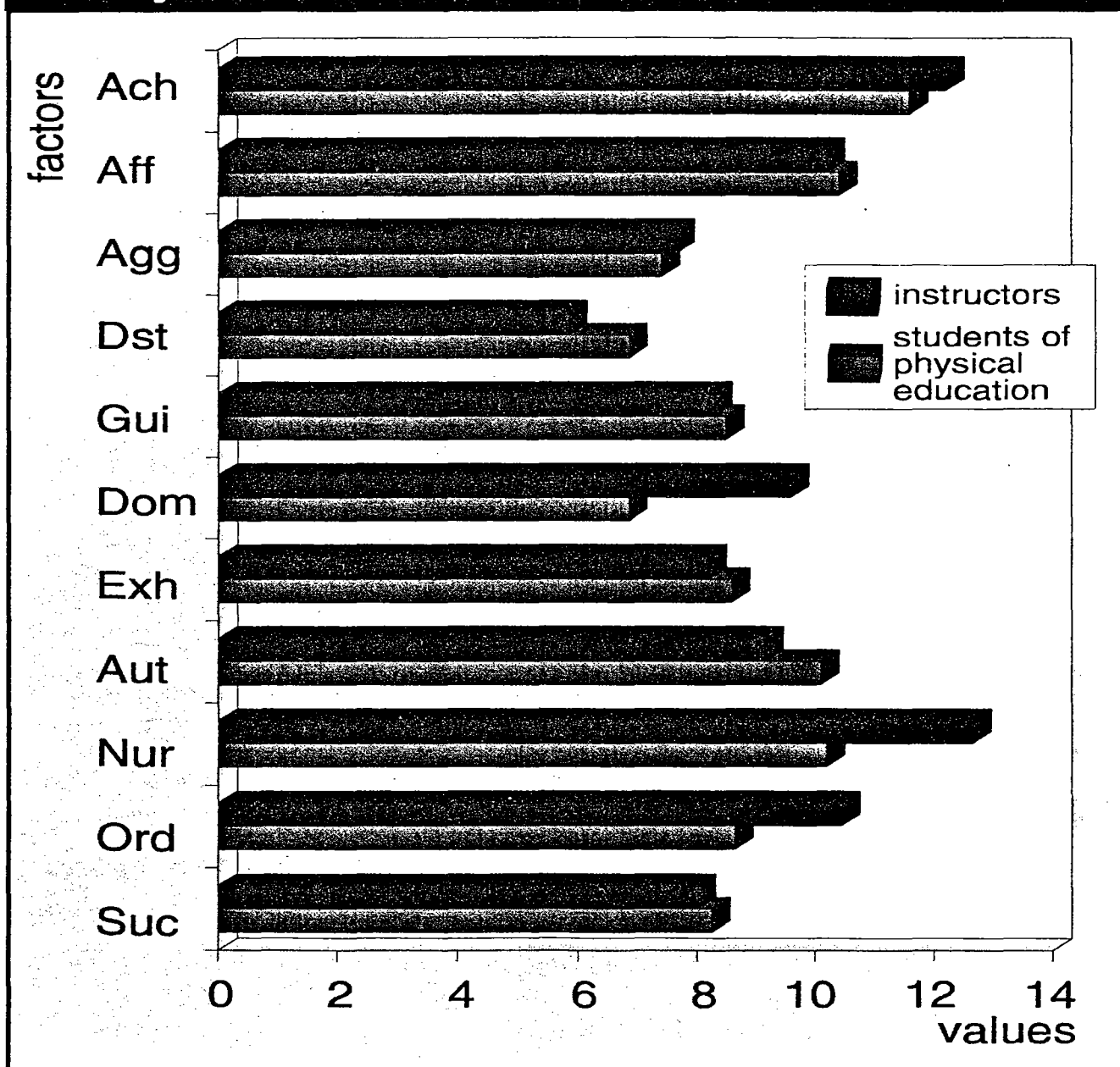
In our sample the affiliation need of female students is stronger (10,8) than that of male students (9,32) (  $T=2,59$ ).

Due to the specificity of sport activity Aff indicator reveals a few characteristic features. Investigating the first-year students and their choices of sport in the university we found that rhythmic gymnastics, ballgames and swimming were chosen by the students who had relatively high Aff need and low Aut need. It was quite the other way round with body-builders. With rhythmic gymnasts Aff stands on the second position on the significance scale. Female body-builders place this variable on the 3rd position and male body-builders even on the 5th position. Runners also reveal a relatively low Aff indicator

- 9,3. As middleand long-distance running requires from a sportsman much more independence than rhythmic gymnastics, for example, it is obvious that the affiliation needs of runners and gymnasts are different.

Figure 2

### Comparison of Personality Traits of Students of Physical Education and Their Instructors



4. The comparison of the personality traits of students of physical education and the instructors (Figure 2) shows that age and professional activity contribute to the development of the variables characteristic of such needs as

achievement - increase 10,4%

order - increase 12,0%

nurturance - increase 12,4%  $p < 0,05$ .

At the same time the needs for dominating, decision-making and leadership (Dom 14%) and aggression (10,3%) also increase.

The variables which become less significant are:

assistance and support from other people - Succorance (Suc);

guilt feeling (Gui);

(surprisingly) exhibition need (Exh);

need to defend one's status or position (Dst).

## IN CONCLUSION

In the present research we have dealt with personality traits as dynamic indicators which develop simultaneously with changes in life experience and needs. As it is shown by the investigation data the variables of personality traits depend on sex, age, branch of activity, athletic qualification etc. of the subject.

## REFERENCES

1. Bergman,U. (1991). Psycho Social Aspects of Physical Activity & Sport as A Therapy and Rehabilitation Instrument With Combat Reactions Injured. VIII European Conress of Sport Psychology, 10.-15. sept., Köln. Abstracts, 15.
2. Eldar, E. (1991). Uunctional Teaching Model Behavioral Rehabilitation Through Sports Activity. VIII European Conress of Sport Psychology, 10.-15. sept., Köln. Abstracts, 44.
3. Oja,S. (1993). Psychological Self-Regulation-A Means to Control Emotional Status: Importance and Teaching. FEPSAC Congress: "Emotions in Sports", April 22-24, Jyväskylä, Finland,39.
4. Tiik,A. (1977). The Popular Winter Games of Estonians. XIX Republican Scientific-Methodical Physical Education Conference. Abstracts. Tallinn, 113-116. (in estonian)

## SOCIAL PHYSIQUE ANXIETY AND EXERCISE

Judy L. Van Raalte and Britton W. Brewer, Center for Performance Enhancement and Applied Research, Springfield College, Springfield, MA, USA

## KEY WORDS

Exercise, Psychology, Social Physique Anxiety

## INTRODUCTION

Social physique anxiety (SPA), anxiety that people experience when others evaluate their physique, has been hypothesized to affect level of participation in exercise. In particular, Hart, Leary, and Rejeski (1989) found that people with high SPA experienced greater anxiety during an evaluation of their physiques than did people with lower SPA. Hart et al. concluded that people with high SPA experience heightened anxiety in exercise situations. They hypothesized that people with high SPA would tend to avoid exercising to reduce the opportunity for others to evaluate their physique or, conversely, would exercise excessively to increase the likelihood that their physique would be evaluated positively.

Crawford and Eklund (1994) examined more closely the possibility that people with high SPA have different reasons for exercising than other people. They had 104 women rate their SPA and reasons for exercising. As would be expected based on the hypothesis of Hart et al. (1989), their results indicated that women with high SPA exercised for self-presentational reasons, perhaps to enhance the likelihood that others would evaluate their physique positively.

If people high in SPA are particularly sensitive to the perceptions of others when exercising, then it is also likely that they will be particularly sensitive to characteristics of the exercise environment. Spink (1992) assessed the SPA and preferred exercise setting of 37 nursing students. His results indicated that students with high SPA were more likely to prefer to exercise at home. Spink hypothesized that high SPA subjects preferred

home exercise because it is more private than outdoor or club exercise settings. This prediction, however, was not tested directly.

It has been suggested that people with high SPA are more likely to exercise alone and exercise for different reasons than people with low SPA (Crawford & Eklund, 1994; Eklund & Crawford, 1994; Spink, 1992). Although specific strategies to reduce the SPA-inducing properties of group exercise settings have been presented (Hart et al., 1989), empirical tests of the relationship between SPA and exercise in group or individual settings have not been conducted. Therefore, the primary purpose of this investigation was to test the hypothesis that high SPA individuals would prefer to exercise alone. High and low SPA individuals' reasons for exercising were also assessed.

## METHOD AND PROCEDURE

### Participants

Participants were 175 undergraduate psychology students (102 females, 73 males).

### Measures

During a regular class session, participants completed the Social Physique Anxiety Scale (SPAS; Hart, Leary, & Rejeski, 1989). The SPAS is a 12-item scale on which subjects are asked indicate the extent to which they become anxious when others observe or evaluate their physiques. Sample items include "There are times when I am bothered by thoughts that other people are evaluating my weight or muscular development negatively," "When I look in the mirror I feel good about my physique/figure," and "When in a bathing suit, I often feel nervous about the shape of my body." Subjects also completed the 24-item Reasons for Exercise Inventory (REI; Silberstein, Striegel-Moore, Timko, & Rodin, 1988). The REI consists of seven subscales assessing various motivations for engaging in exercise: Weight Control, Fitness, Health, Body Tone, Physical Attractiveness, Mood Enhancement, and Enjoyment. Finally, subjects answered questions about whether they preferred to exercise alone or in a group.

## RESULTS

Using a median split, subjects were divided into high ( $n = 92$ ) and low ( $n = 83$ ) SPA groups. High SPA subjects, who had SPAS scores above 33, were significantly higher in SPA than the low SPA group,  $t(73) = -17.84$ ,  $p < .001$ . The high and low SPA groups did not differ, however, in terms of height,  $t(172) = 1.10$ ,  $p > .05$ , and weight  $t(172) = -0.68$ ,  $p > .05$ .

Chi-square analyses were conducted to determine whether subjects differing in SPA also differed in their preferred exercise environment. The expected frequencies of preferred exercise environment used for comparison purposes were those of North Americans in the 20-24 year old age group. Counter to the hypothesized pattern of results, subjects' preferences for particular exercise settings were unrelated to SPA. SPA was, however, related to subject' reasons for exercising. SPA was positively correlated with self-presentational reasons for exercising including the Weight Control ( $r = .27$ ,  $p < .001$ ), Body Tone ( $r = .29$ ,  $p < .001$ ), Physical Attractiveness ( $r = .25$ ,  $p < .001$ ), and Enjoyment ( $r = .22$ ,  $p < .005$ ) subscales of the REI.

## DISCUSSION

The results of this study do not support the hypothesis that people with high SPA are more likely to exercise alone than people with low SPA. One of the reasons that the results of this study failed to support the hypothesis may be that the SPA of the high SPA group was not high enough to prevent participants from wanting to engage in group exercise on campus. Most exercisers on campus wear baggy clothes and enjoy social interaction during exercise, factors that may be appropriate for the needs of high SPA people. This is in contrast to many exercise settings where weigh-ins (Hart et al., 1989) and tight clothing (Crawford & Eklund, 1994) contribute to the anxiety of high SPA individuals.

The results of this study do suggest, however, that SPA is related to subjects' reasons for exercising. As Crawford and Eklund (1994) found, subjects with high SPA were more

likely to exercise for self-presentational reasons than those with lower SPA. Thus, interventions designed to increase participation in exercise should consider the levels of SPA in the target population.

#### REFERENCES

- Crawford, S., & Eklund, R. C. (1994). Social physique anxiety, reasons for exercise, and attitudes toward exercise settings. Journal of Sport & Exercise Psychology, 16, 70-82.
- Eklund, R. C., & Crawford, S. (1994). Active women, social physique anxiety, and exercise. Journal of Sport & Exercise Psychology, 16, 431-448.
- Hart, E. A., Leary, M. R., & Rejeski, W. J. (1989). The measurement of social physique anxiety. Journal of Sport & Exercise Psychology, 11, 94-104.
- Silberstein, L. R., Striegel-Moore, R. H., Timko, C., & Rodin, J. (1988). Behavioral and psychological implications of body dissatisfaction: Do men and women differ? Sex Roles, 19, 219-232.
- Spink, K. S. (1992). Relation of anxiety about social physique to location of participation in physical activity. Perceptual and Motor Skills, 74, 1075-1078.



## **TYPE A BEHAVIOR FACTOR INFLUENCING PERCEIVED EXERTION DURING CHALLENGING EXERCISE**

**Y. Yamaguchi<sup>1</sup> and T. Nishiyasu<sup>2</sup>**  
**Fukuoka University<sup>1</sup>, Yamaguchi University<sup>2</sup>**

**key Words : RPE, FATIGUE SUPPRESSION, TYPE A, CHALLENGING EXERCISE**

### **Introduction**

An adequate exercise stimulus is effective for improving the cardiovascular function. Adequate exercise is determined by intensity, duration, and frequency. Of these, intensity is the most difficult to regulate. This intensity is determined by heart rate, oxygen up take, work load, ratings of perceived exertion(RPE) and so on. Among them, RPE can be used as an important adjunct to the heart rate in prescribing and monitoring an exercise program. Further, the validity of RPE is established in the proper context. However, clinical reports indicate that about 10% of the population can not use the scale with any accuracy (ACSM, 1991, Pollock, M.L. 1988). Morgan, W.P. (1973) suggests that psychological factors may account for 33% of the variance in perceived exertion. Type A behavior pattern is one of the psychological factors that have been investigated. Carver, C.S. et.al. (1976) reported that Type A individuals show greater suppression of perceived exertion than Type B individuals under exercise testing. Although several studies have examined this symptom suppression hypothesis, these results have been mixed. Dishman, R.K. et.al. (1991) criticized that in previous studies that supported this hypothesis unsuitable fatigue scales had been used and the relative intensity of the exercise had not been controlled. Dishman, R.K. et.al. (1991) examined this hypothesis under standardized clinical conditions and controlled the relative oxygen consumption. The results did not support the symptom suppression hypothesis. However, it is doubtful whether this clinical condition is a challenging situation. It is well established that Type A individuals exhibit A-type characteristics only under conditions of challenge. Although previous studies considered exercise as a challenging task, it was not examined directly whether the exercise situation was truly challenging for Type A. Further, it is not clear whether this hypothesis is valid for any kind of exercise tests. Thus, we made new exercise test (challenging ergometer test:CET) and examined the above hypothesis by our CET.

### Method and Procedure

**Subjects.** The Japanese student version of the Jenkins Activity Survey (J-JAS, Sato, et. al. 1982, 83, 1992) was administered to 150 male students in a health and exercise science course at Yamaguchi University at Yamaguchi. Only 14 Type A(scores of 8 or more) and 14 Type B(scores of 3 or below) students were selected to participate in the actual experiment. Subject characteristics are shown in Table 1. Subjects were contacted by telephone, and individual appointments for the experimental session were arranged.

**Procedure.** Prior to first exercise testing, subjects signed a written informed consent. Then, the subjects of the two groups conducted a graded exercise ergometer test (GXT) until their exhaustions and RPE and maximum rate of oxygen up take ( $\text{VO}_{2\text{max}}$ ) were measured. The GXT protocol consisted of 1-min warmup and the workload progressively increased 50W every 2 minutes until the subject could no longer maintain the required pedaling rate. Subjects were encouraged to give a maximum effort throughout the test.

On another day, the subjects carried out the CET. This task consisted of five 2 min trials and 1 min rests in between the trials. During the trials, the pedal load was changed at 20sec intervals among 50, 60 and 70% $\text{VO}_{2\text{max}}$  in random order. Subjects were asked to set the pedal rates, which were varied from 30 to 70rpm/min, as instructed. To enhance the motivation, before the task, the subjects were told the false purpose that this task was administered to measure their intelligences. All tests were administered individually.

**Data collection.** Oxygen uptake was measured continuously by a computerized open-circuit method. Samples were collected each 30ms using an on-line computer system. Expired gases were directed through a mixing chamber to a gas meter (Fukuda Co.Ltd VE-Meter) for determining minute ventilation. After determination of expired  $\text{O}_2$  and  $\text{CO}_2$  concentration by METS-900 (Vise Medical Co. Ltd),  $\text{VO}_2$  was determined at 30-s intervals. Gas analyzers were calibrated against standard gases prior to each test. The heart rate was measured using a three-lead electrocardiogram (Sanei BioViewE) . RPEs were obtained using Borg's RPE Category Scale administered by standardized instructions at one minute during the trials and immediately after the trials. Two-way repeated measures ANOVA(condition:Type A,B ; Time :1-14 or period:1-10) were used to analyze the data.

TABLE 1. Subject characteristics

	Type A (n=14)	Type B (n=14)
Age (year)	18.8 $\pm$ 0.7	18.6 $\pm$ 0.8
Height (cm)*	172.9 $\pm$ 3.2	169.0 $\pm$ 6.0
Weight (kg)	62.8 $\pm$ 5.8	59.7 $\pm$ 8.8
JAS-AB*	9.4 $\pm$ 1.6	1.1 $\pm$ 0.5
VO <sub>2</sub> max* (ml/kg/min)	59.2 $\pm$ 8.9	51.8 $\pm$ 8.1

\*  $p < .05$  All values expressed as mean  $\pm$  SD

### Results

Heart rate values are shown in Figure 1. Because the VO<sub>2</sub>maxs were significantly different between Type A and Type B, the rates of oxygen up take during the CET were changed to %VO<sub>2</sub>max ( Fig.2 ). There were no significant differences in exercise intensity by the heart rate (  $F=0.002$ ,  $p>.05$  ) and the rates of oxygen up take (  $F=0.19$ ,  $p>.05$  ) between the two groups. The RPEs at each point are shown in Fig.3. Although Type A's RPE was slightly higher than Type B's, there were no significant differences in the RPE's between the two groups. The perceived challenge score before the CET was significantly higher than the GXT (  $t = 3.28$ ,  $p < .01$  ).

### Discussion and Conclusions

The purpose of the present study was to examine the Type A symptom suppression hypothesis that Type A individuals show greater suppression of perceived exertion than Type B individuals under challenging exercise testing.

Our results did not support this hypothesis. Dishman, R.K. (1991) pointed out two factors about the mixed results in previous studies. First, previous studies that have concluded an association between perceived exertion and Type A Behaviour Pattern have not used validated measures of RPE. Second, these studies have not controlled the relative intensity of the exercise. In our study, we used the validated measure of Borg's RPE. Furthermore, there were no significant differences between the two groups in exercise intensity by heart rate and %VO<sub>2</sub>max during the CET. This means that we cleared up these two factors.

Schlegel, R.P. (1980) mentioned the importance of the experimenter's instruction and the subject's sense of challenge in the exercise situation. In the study of Carver et al.(1976), each subject was told that the predetermined length of time was set for the treadmill test in addition to being told to do his best, but not to overdo it. In our experiment, to enhance the motivation, before the task the subjects were told the false

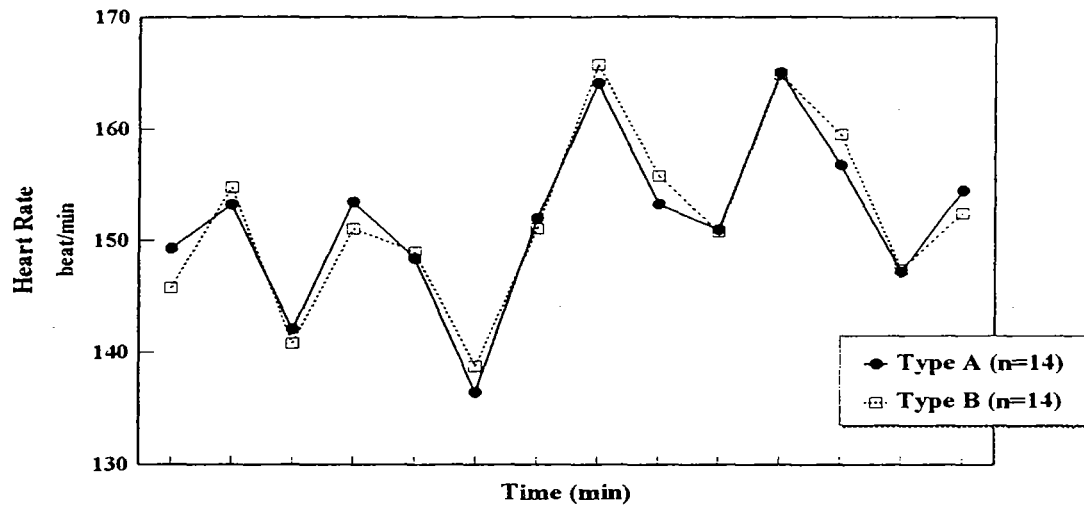


Fig.1 Comparison of Type A'HR and Type B's HR during CET

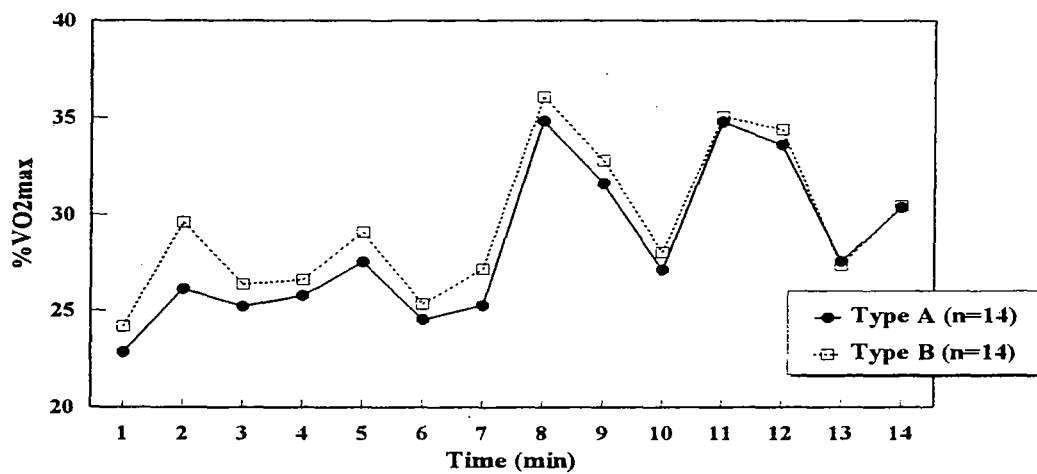


Fig. 2 Comparison of Type A's %VO2max and Type B's %VO2max during CET

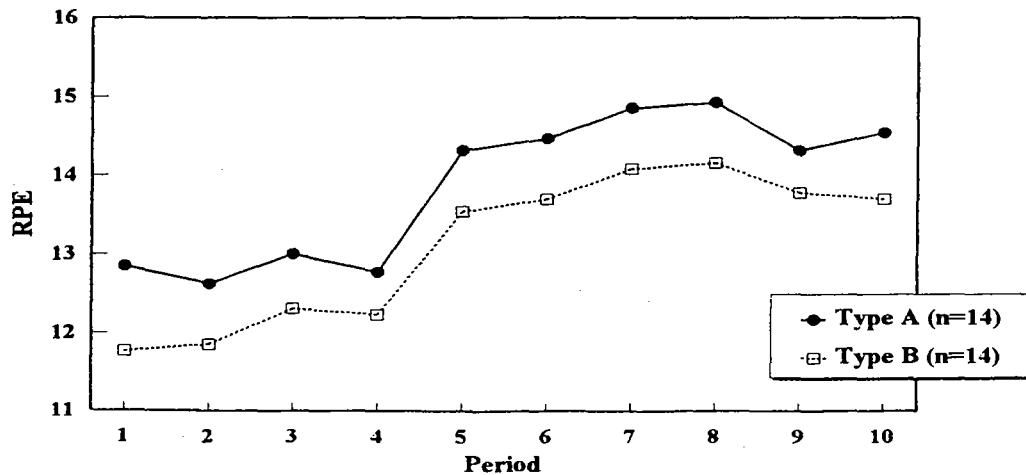


Fig. 3 Comparison of Type A's RPE and Type B's RPE during CET

purpose that this test was administered to measure their intelligences and their results would be compared with those of other university students. Furthermore, we administered an actual intelligence test before the CET. In results, although we could not find significant differences between Type A's and Type B's, the perceived challenge before the CET was higher than before the conventional graded ergometer test. These results suggest that the subjects in our experiment exercised under the condition of high challenge. In spite of this condition, Type A's RPE did not differ from Type B's. These results did not at all support the Type A symptom suppression hypothesis.

In conclusion, these findings indicate that the self-report estimates of Type A Behavior Pattern are not related with the RPE during a challenging bicycle ergometer test in Japanese male college students.

#### References

1. Carver, C.S., Coleman, A.E., and Glass, D.C. (1976). The coronary-prone behavior pattern and the suppression of fatigue on a treadmill test. *Journal of Personality and Social Psychology*, 33(4):460-466.
2. Dishman, R.K., Graham, R.E., Holly, R.G., and Tieman, J.G. (1991). Estimates of Type A behavior do not predict perceived exertion during graded exercise. *Medicine and Science in Sports and Exercise*, 23(11):1276-1282.
3. Fllingim, R.B., and Fine, M.A. (1986). The effects of internal versus external information processing on symptom perception in an exercise setting. *Health Psychology*, 5(2):115-123.
4. Onodera, K., and Miyashita, M. A. (1976). Study on japanese scale for rating of perceived exertion in endurance exercise. *Japan Journal of Physical Education*, 21(4):191-203.
5. Rejeski, W.J., Morley, D.M., and Miller, H. (1983). Cardiac rehabilitation : coronary-prone behavior as a moderator of graded exercise test performance. *Journal of Cardiac Rehabilitation*, 3:339-346.
6. Sato, G. (1992). An over view of the student version of the Jenkins Activity Survey (JAS): Its development and performance. *Type A*, 3(1):24-28.
7. Schlegel, R.P., Wellwood, J.K., Copps, B.E., Gruchow, W.H., and Sharratt, M.T. (1980). The relationship between perceived challenge and daily symptom reporting in Type A vs. Type B postinfarct subjects. *Journal of Behavioral Medicine*, 3(2):191-204.
8. Watt, B., and Grove, R. (1993). Perceived exertion : Antecedents and applications. *Sports Medicine*, 15(4):225-241.



### ***SYMPOSIUM SESSION 3***

- S.3.1.** Psychology of official
- S.3.2.** Career transitions of athletes
- S.3.3.** Cognitive and behavior modification strategies in exercise psychology





### **S.3.1. PSYCHOLOGY OF OFFICIAL**

*Chairperson* : J. LIUKKUNEN

---

## JUDGING FIGURE SKATING PERFORMANCE: EMPIRICAL EVIDENCE FOR THE ORDER-EFFECT

Peter Paul Moormann<sup>1</sup> and Arjen van der Knoop

### Introduction

Subjectivity is a core element in all areas of human judgment and figure skating<sup>2</sup> competitions are not immune. Figure skating is a particularly interesting field for studying the effects of subjectivity in human judgement, whereby skaters, trainers, judges and spectators all display differences of opinion on who deserves the best marks and why. Much debate and speculation takes place as to why certain marks are given. Sometimes it is assumed that a particular judge has given a specific skater comparatively low or high marks deliberately for reasons other than those to do with pure skating. For example for reasons of liking or disliking a certain skater, matters of reputation, and national bias (see Fenwick & Chatterjee (1981) regarding figure skating, and Ansorge & Scheer (1988) regarding gymnastics). Other more subtle causes for overrating or underrating the performance of a skater can be attributed to *unintentional* factors such as the starting order (see Scheer (1973), Scheer & Ansorge (1975), and Ansorge, Scheer, Laub, & Howard (1978) regarding gymnastics, and Wilson (1977) regarding synchronized swimming). It is a commonly accepted belief that it is a disadvantage for a good skater to draw a low starting number. It is suggested that this is caused by the expectations judges have, regarding the ones who start at the end of the series. He/she thereby is more likely to be awarded lower marks than when having drawn a high starting number. This is called the order-effect, i.e., the tendency to gradually increase the marks as the series progresses.

Studies on the professionalism of judging show that expert judges rate differently than laymen (see for example Landy & Farr, 1983). The judgements of experts are more accurate (White & Tirrell, 1953) and have a higher construct validity (Zedeck & Baker, 1972). These studies concerned judgements in a labour situation.

In the present paper the order-effect is going to be tested for empirical evidence. Moreover, it was considered to be of interest to investigate whether laymen differ from experts when judging figure skating, particularly in regard to reliability and the validity of the judgements.

---

<sup>1</sup> Leiden University, The Netherlands

<sup>2</sup> keywords: figure skating, judging, order-effect, laymen, experts, reliability, validity

## METHOD

### Subjects

A total of 42 volunteer subjects were used for this experiment.

One half of the subjects, twenty-one (10 males, 11 females, from 22 to 37 years of age), were psychology students at the Leiden University. These particular subjects could neither distinguish nor name the different jumps and spins. They were therefore classified as *laymen*.

The other half of the subjects, twenty-one again (9 males, 12 females, from 18 to 53 years of age) were classified as *experts*. This group consisted of official judges of the KNSB (Royal Dutch Skating Federation), figure skating trainers, and a few former national champions in figure skating.

### Experimental conditions

Three experimental conditions were created, which consisted of the presentation of 3 different video-tapes of the bronze group (29 girls) at a Dutch Roller Skating Championship. A roller skating competition was used instead of an ice skating competition, because of the following reasons:

1) To exclude biases that are present, which are related to knowing/recognizing a skater by the experts. This ensured that all the skaters were unknown to both groups of subjects.

2) There is no essential technical difference between ice and roller skating. Spins and jumps remain the same in both skating disciplines. Ice skating judges would not therefore experience problems in identifying and naming the elements performed on roller skates. The same skaters were used on all the tapes, but the order of presentation varied per tape.

The procedure adopted for the construction of the three tapes was as follows:

The skaters on the mother tape had already been ranked by roller skating judges. This rank order was considered unsuitable for the experiment, because it was the aim of the experiment to eliminate all known biases as far as was possible, for instance familiarity and favoritism (see point 1 above). It was therefore necessary to rerank all the mother tape skaters from poor to good (*criterion rank order*). The following procedure was used:

1. Two expert raters reanalyzed the mother videotape separately by looking at it several times. This was done to get an impression of the standard of skating of each competitor in relation to the standard of skating of the whole event. This procedure cannot be followed in a real competition, because the marks must be given directly after the first skater. In a study on judging gymnastics vaults Puhl (1980) concludes that the use of video replays, the procedure followed in the present experiment, enhances the judges' reliability. Video replays may be helpful in reducing variability of scores and in producing more consistent mean scores with certain vaults.

2. Weights were attached to each kind of jump and spin, based on the difficulty of that specific element as specified by the I.S.U., which resulted in a quantitative score per skater, consisting of the sum total of the number of elements multiplied by their weights.

3. Each skater was rated on a 5-point scale regarding 'speed', 'cleanness and sureness', 'easy movement and sureness in time to the music', 'carriage', and 'expression of the character of the music'. This technique resulted in a score per skater, consisting of the sum total of the separate indices. The interrater-reliability among both experts was satisfactory ( $r = .81$ ).

4. The official rank order obtained by the roller skating judges was included.

5. First a rank order was determined for procedure 2, and 3. The final rank order of the skaters, from the poorest up to the best, was achieved by calculating the results from procedure 2, 3, and 4 in a way analogous to Rule 372, ad. a of the I.S.U., 1984), i.e., after having determined the rank order for procedure 2, 3., and 4, the placing obtained by each competitor was multiplied by the following factors:

- |                    |     |        |
|--------------------|-----|--------|
| a) - procedure 2 - | 0.6 | (30 %) |
| b) - procedure 3 - | 0.4 | (20 %) |
| c) - procedure 4 - | 1.0 | (50 %) |

The results so obtained were added together and the best (cumulative) placement was given to the competitor with the lowest total. If two or more competitors received the same total, the placement was decided on the basis of the best placement for procedure 4. If such placements were also equal the competitors concerned were tied (see I.S.U., Rule 372, ad. b, c).

Although the above procedure was intended to increase objectivity (particularly by introducing procedure 2), it should be noted that a certain amount of subjectivity is inherent in every situation where human judgement is involved.

## the order-effect

Out of the 29 skaters 28 were transferred from the mother tape to three different video-tapes. The 28 skaters were assigned to 4 subgroups of each 7 skaters: the seven best (group 1), the seven next best (group 2), the seven average (group 3), and the seven poorest (group 4). A difference between two successive skaters was operationalized as a relative difference (RD). Within subgroup sequences of two skaters resulted in the smallest possible relative differences (RDs), whereas between subgroup sequences of two skaters resulted in large relative differences.

On this basis three different tapes were constructed. Each tape had its own order of presentation:

Condition 1: *Homogeneous decreasing presentation order*: Starting with good skaters (group 1 and 2), and ending with poor skaters (group 3 and 4). This means comparatively small RDs between two successive skaters; Condition 2: *Homogeneous increasing presentation order*: Starting with poor skaters (group 4 and 3), and ending with good skaters (group 2 and 1). This means comparatively small RDs between two successive skaters. Condition 3: *Heterogeneous presentation order*: Distribution of good and bad skaters throughout the tape, with as much relative difference among them as possible (large RDs).

For the construction of the homogeneous conditions the largest possible degree of variation between two successive skaters was ensured. This was done to prevent the judges from getting the idea that each skater was followed either by an inferior, or a superior skater as the series progressed. In addition throughout the three conditions it was ensured that:

(a) The same sequence of two skaters was never repeated in more than one condition, and  
(b) The relative differences (RDs) of the assessed qualities all occurred at least 4 times. Hence, four subgroups were thus created, which gave  $4 \times 4 = 16$  intersubgroup RDs (1-1, 1-2, 1-3, 1-4, 2-1, 2-2, 2-3, 2-4, 3-1, 3-2, 3-3, 3-4, 4-1, 4-2, 4-3, 4-4) each of which took place throughout all three conditions at least 4 times. The above ensured that a sufficient amount of data required for reliable investigation was produced.

Each tape was shown twice: once to a panel of expert judges and once to a panel of laymen judges.

## Procedure

The laymen ( $N = 21$ ) were divided at random into three groups, with each group making up a panel of 7 judges. The same procedure was applied to the group of experts ( $N = 21$ ). Before the actual judging commenced, the instructions for the experiment were given and time was allowed for asking questions.

The panel of judges viewed the skaters one by one. The tape was stopped after each skater had completed her individual program (2 minutes), and then the judges were requested to rate the skater. Two marks had to be awarded. The first for technical merit, and the second for artistic impression. Each judge was required to read out aloud the marks awarded.

## RESULTS

### The order effect

Skaters assigned to group 1 and group 2 (the 14 best) acted as target items in the first analysis. A Wilcoxon Matched-Pairs Signed-Ranks test was carried out to verify whether the final rankings determined by the majority-system (ISU, 1984) were significantly lower in the homogeneous decreasing than in the homogeneous increasing condition. This would indicate whether the better skaters would be hampered by an early start, or would benefit from a late start, or would be affected by both. This order effect was observable in the laymen group ( $N = 14$ ,  $T = 12.5$ ,  $p < .01$ ), but did not occur in the expert group ( $N = 13$ ,  $T = 53$ ,  $p > .05$ ).

A second analysis was used to establish more sophisticated statements. The scores obtained from different subjects were assumed not to have the same statistical distributions. As a consequence of the leniency-severity phenomenon the means would not be the same.

For each judge, in each condition, after each judged skater the mean of the scores given up to then was computed, and divided by the final mean after all 28 skaters. By this way of filtering the data, a substantial amount of irrelevant variance was removed from the data. Hence 28 *moving averages* were computed, over which a condition x starting number ( $3 \times 28$ ) ANOVA was carried out.

the order-effect

An interaction-effect was found between condition and starting number, both for laymen [ $F(54, 486) = 11.67, p < .01$ ] and experts [ $F(54, 486) = 11.94, p < .01$ ].

Therefore the three conditions were analyzed separately with one-way Anovas. In all cases where a significant starting-number factor was found, regression analyses were done in order to determine the straight line accounting for most of the variance.

This happened in fact to be true for each condition (with an alpha of .01). The F-values are given in Table 1, together with the most suitable regression line, and the proportion of variance explained by this line.

**TABLE 1: The Order effect. Results of the TREND-ANALYSES with respect to the *second analysis*. For each condition, both for laymen and experts, the F-value of one-way Anovas, the regression equation of the linear trend, and the proportion of explained variance by the linear trend are presented. With 27 and 162 degrees of freedom a F-value of 1.70 or higher gives 99% certainty for rejecting the nullhypothesis stating that there is no effect:  $F(27, 162) = 1.70, p = .01$**

	Condition	F-value	Regression equation	Prop. expl.Variance
LAYMEN	Heterogeneous	37.44	$Y = +.004 \times (X - 14.5) + .965$	.73
	Homogeneous decreasing	15.92	$Y = -.002 \times (X - 14.5) + 1.001$	.00
	Homogeneous increasing	17.00	$Y = +.006 \times (X - 14.5) + .931$	.93
EXPERTS	Heterogeneous	9.97	$Y = +.003 \times (X - 14.5) + .977$	.52
	Homogeneous decreasing	9.19	$Y = -.005 \times (X - 14.5) + 1.056$	.77
	Homogeneous increasing	6.88	$Y = -.001 \times (X - 14.5) + .995$	.03

Demonstrating a significant effect with a factor of 28 levels is statistically not very unusual. Therefore, a third analysis was performed to establish more refined statements, using the moving averages. However, now they were averaged per judge over the four starting-groups. The 28 skaters were considered as having started in groups of seven (the starting-numbers 1-7 in group A, 8-14 in group B, 15-21 in group C, and 22-28 in group D). The *moving averages* of the judges after each of the skaters from a group were *averaged per judge*. Then the obtained 4 scores per judge were then analyzed according to the same method as before: with a condition x starting-group-number (3 x 4) ANOVA. Separate one-way Anovas were again run for each condition. Regression analyses were done in case of significant overall-effects. Furthermore Tukey's (1953) A Posteriori HSD-test was used to specify significant differences.

The analysis resulted in a statistically more impressive outcome. Again an interaction-effect was found between condition and starting-group-number, both in laymen [ $F(6, 162) = 14.57, p < .01$ ], and in experts [ $F(6, 162) = 15.06, p < .01$ ]. Therefore the three conditions were analyzed separately with one-way Anovas. Regarding the three separate one-way Anovas the starting-group-number factor again appeared to be significant (alpha = .01) in all cases. The F-values from these analyses, their regression lines, and their proportion of explained variance are presented in Table 2.

Table 2 shows that in the heterogeneous condition both laymen and expert judges have a tendency to increase the standardized mean as the series progresses. The same holds for laymen judges in the homogeneous increasing condition. However, with a homogeneous decreasing series of skaters both laymen and expert judges are inclined to decrease the standardized mean as the series progresses. It should be noted that the regression line of the laymen only accounts for 6 % of the variance.

the order-effect

**TABLE 2: The Order effect. Results of the TREND-ANALYSES with respect to the third analysis. For each condition, both for laymen and experts, the *F*-value of one-way Anovas, the regression equation of the linear trend, and the proportion of explained variance by the linear trend are presented. With 3 and 18 degrees of freedom a *F*-value of 5.09 or higher gives 99% certainty for rejecting the null hypothesis stating that there is no effect:  $F(3,18) = 5.09$ ,  $p = .01$**

	Condition	<i>F</i> -value	Regression equation	Prop. expl.Variance
L A Y M E N	Heterogeneous	43.84	$Y = +.028 \times (X - 2.5) + .965$	.94
	Homogeneous decreasing	5.55	$Y = -.029 \times (X - 2.5) + 1.001$	.06
	Homogeneous increasing	23.64	$Y = +.038 \times (X - 2.5) + .931$	.99
E X P E R T S	Heterogeneous	12.89	$Y = +.022 \times (X - 2.5) + .977$	.82
	Homogeneous decreasing	10.76	$Y = -.039 \times (X - 2.5) + 1.056$	.96
	Homogeneous increasing	7.92	$Y = -.003 \times (X - 2.5) + .995$	.03

Comparable deductions could be anticipated by using Tukey's test. Regarding the laymen the following became evident. In the heterogeneous condition all the starting-groups differed from each other, except for groups C and D. The standardized means increased as the series progressed. In the homogeneous decreasing condition group B got the best judgements. In the homogeneous increasing condition group D got the best judgements. Moreover C got better judgements than A.

The experts showed decreasing differences regarding the height of their standardized mean as the series progressed. In the heterogeneous condition the standardized mean after group A was lower than after the other three groups. In the homogeneous decreasing condition group D is judged lower than group A and B. In the homogeneous increasing condition group B is judged lower than than the groups A and D.

Table 3 gives a presentation of these differences.

**TABLE 3: The Order effect. For laymen (at the left) and experts (at the right) in the cells it is indicated in which condition (H = heterogeneous; HD = homogeneous decreasing; HI = homogeneous increasing) the standardized means differ from each other at the 1% significance level, when using Tukey's test, with different starting-group-numbers (rows and columns). In cases where a capital letter is used the difference is such that it is higher after the last presented group, i.e., the standardized mean increases as the series progresses. In cases where a small letter is used the difference is such that it is higher after the first presented group, i.e., the standardized means decreases as the series progresses.**

	Laymen				Experts			
	A	B	C	D	A	B	C	D
A		H,HD	H,HI	H,HI		H,hi	H	H,hd
B			H,hd	H,hd,HI				H,hd
C				HI				
D								

### Reliability and Validity

Table 4 gives three reliability measures, computed by:

- 1) the mean of the intercorrelations (Pearson) over the raw scores,
- 2) the mean of the intercorrelations (Spearman) over the rank orders, and
- 3) Kendall's Coefficient of Concordance (see Hays, 1988)

An indication of the validity is given in the outer right column, where the means of the Spearman correlations between a judge's rank order and the criterion rank order are presented. The results from Table 4 indicate higher reliability and validity coefficients for expert than for laymen judges. The only exception is the somewhat lower validity coefficient for experts in the homogeneous increasing condition.

**TABLE 4:** *Three different reliability coefficients, i.e., the means, and one validity coefficient in the three experimental conditions, both for LAYMEN (plain text) and EXPERT judges (italic)*

	<i>Mean Pearson</i>	<i>Mean Spearman</i>	<i>Kendall's Concordance</i>	<i>Validity</i>
Hetero- geneous	.59 / .73	.57 / .75	.63 / .78	.53 / .78
Homogeneous decreasing	.40 / .78	.40 / .69	.48 / .74	.58 / .60
Homogeneous increasing	.58 / .60	.60 / .57	.65 / .63	.64 / .47
All 21 judges	.39 / .60	.39 / .58	.41 / .60	.68 / .77

## DISCUSSION

### The Order-Effect

In the *homogeneous decreasing* condition it was anticipated that judges would give lower marks as the series progressed, given that the performance level of the skaters decreased. It was found that the expert judges indeed behaved in line with this expectation. Skaters belonging to the last two starting groups received much lower marks than skaters belonging to the first two starting groups. The standardized mean of the last two starting groups was much lower than that of the first two starting groups. The laymen judges did not display this behavior to the same extent. The standardized means of group C (third starting group) and D (fourth starting group) were significantly lower than the standardized mean of group B (second starting group), which indicates that laymen judges were affected by the quality of the skater's performance as well. However, the finding that group B had a significantly higher standardized mean than the standardized mean of group A (first starting group), and the finding that group A did not differ from group C and D suggest that laymen judges were affected by the order effect.

In the *homogeneous increasing* condition, where the quality of the skater's performance increases as the series progresses, it was anticipated that the marks given by the judges, and therefore the standardized mean would increase accordingly. It was interesting to observe that the behavior of the laymen judges was more in line with the above expectation than that of the expert judges. The marks of the laymen judges were a better reflection of the increases in performance level as the series progressed than the marks given by the expert judges (in fact the latter group did less well). It certainly raises the question of the competence of the so-called experts in the homogeneous increasing condition.

The *heterogeneous* condition, it was anticipated, would result in a horizontal regression line (with a coefficient of 0) with a value of 1, and in no significant differences, for the mean should not change as the series progresses. Neither laymen nor expert judges behaved as anticipated. Both groups were strongly inclined to increase the standardized mean as the series progressed. This effect was more consistent in laymen ( $A < B < C < D$ ), but experts kept the marks low at the beginning of the series as well ( $A < B, C$  and  $D$ ).

The last finding is a particularly strong indication for the existence of the order-effect. However, compared with the effect caused by the quality of the skater's performance the order-effect is rather small. Furthermore the results suggest that expert judges are less susceptible to the order-effect than laymen judges (the former had lower regression coefficients, less significant differences between the starting-group-numbers, and nonsignificant results on the Wilcoxon Matched-Pairs Signed-Ranks Test). This confirms the existing but not always accepted notion that only judges who are well-trained, with a high expertise in the relevant skating discipline should be allowed to take a place in a panel of judges.

Being an expert judge should automatically imply a constant awareness of the possible impact of the order effect upon judging. *The results indicate that presenting the skaters in a homogeneous increasing starting order should be considered as an aid to better judging.* This would indicate therefore that a system of preselections can be recommended (see Popovic & Kaprov, 1992, and Gailhaguet, 1992).

### Reliability and Validity

The overall picture of the reliability and validity coefficients clearly suggests that the experts indeed are the more competent judges. The only puzzling result is the behavior of the panel of expert judges in the homogeneous increasing condition. Here relatively low reliability coefficients and a strikingly low validity coefficient were found. This particular validity coefficient of the expert judges is much lower than the one of the panel of laymen judges. Two explanations for the less competent behavior of the expert judges in the homogeneous increasing condition can be put forward:



the order-effect

- 1) The greater order effect in laymen might have contributed to a strong reliability-facilitating effect, and
- 2) The experts in the homogeneous increasing condition did not do their job very well. The latter explanation seems the more plausible when the reliability coefficients of the panel of judges in the homogeneous increasing condition are compared with those in the two other expert conditions. The reliability coefficients in the homogeneous increasing conditions were lower than those present in the other two conditions.

The results of the present experiment lead to the recommendation that skaters could earn fairer rankings if judges became more familiar with the psychological processes responsible for all the kinds of biases found in human judgement (see Moormann, 1994 for more details). *Therefore a minimum knowledge of the psychology of judgement should be included in the training required to become a figure skating judge.*

## REFERENCES

- Ansorge, C.J., Scheer, J.K., Laub, J., & Howard, J. (1978). Bias in judging women's gymnastics induced by expectations of within-team order. *Research Quarterly*, 49, 4, 399-405.
- Ansorge, C.J., & Scheer, J.K. (1988). International bias detected in judging gymnastic competition at the 1984 Olympic Games. *Research Quarterly for Exercise and Sport*, Vol.59, No. 2, 103-107.
- Faulkner, J., & Loken, N. (1962). Objectivity of judging at the national collegiate athletics association gymnastic meet: A ten year follow-up study. *Research Quarterly*, 33, 485-486.
- Fenwick, I., & Chatterjee, S. (1981). Perception, preference, and patriotism: An exploratory analysis of the 1980 Winter Olympics. *The American Statistician*, Vol. 35, nr. 3, 170-173.
- Gailhaguet, D. (1992). EPSA discusses changes of rules with ISU. *EPSA News: Informations for the members of the European Professional Skating Coaches Association*, 3, 17-18.
- Hays, W.L. (1988). *Statistics* (4th Ed.), New York, Holt, Rinehart & Winston.
- International Skating Union (1984). *Regulations*. Davos, Buchdruckerei Davos AG.
- Landy, F.J., & Farr, J.L. (1976). *The measurement of work performance*, New York, Harper & Row Publishers.
- Landy, F.J., & Farr, J.L. (1980). Performance ratings. *Psychological Bulletin*, 87, 1, 72-107.
- Moormann, P.P. (1994). *Figure skating performance*. Dissertation. Leiden University, The Netherlands.
- Popovic, V., & Kaprov, V. (1992). Proposition of Yugoslavian Skating Federation: 1.Principle of ranking of skaters, 2. On system of drawing for original programs, 3. Classification of Younger categories. *EPSA News: Informations for the members of the European Professional Skating Coaches Association*, 2, 7-8.
- Puhl, J. (1980). Use of video replay in judging gymnastic vaults. *Perceptual and Motor Skills*, 51, 51-54.
- Scheer, J.K. (1973). Effect of placement in the order of competition on scores of Nebraska High School Students. *Research Quarterly*, Vol. 44, Nr. 1, 79-85.
- Scheer, J.K., & Ansorge, C.J. (1975). Effects of naturally induced judges' expectations on the ratings of physical performance. *Research Quarterly*, 46, 463-471.
- Whitla, D.K., & Tirrell, J.E. (1953). The validity of ratings of several levels of supervisors. *Personnel Psychology*, 6, 461-466.
- Wilson, V.E. (1977). Objectivity and effect of order of appearance in judging synchronized swimming meets. *Perceptual and Motor Skills*, 44, 169-173.
- Zedeck, S., & Baker, H.T. (1972). Nursing performance as measured by behaviorally expectation scales: A multitrait-multirater analysis. *Organizational Behavior and Human Performance*, 7, 457-466.

## PSYCHOMOTOR AND PSYCHOLOGICAL RECORDING OF BASKETBALL OFFICIALS: A COMPARATIVE STUDY OF GREEK AND FIBA OFFICIALS

*ZERVAS Yannis, KAKKOS Vassilis, PSYCHOUDAKI Maria,*

*DOUVIS Stavros, and STAVROU Nektarios*

Department of Physical Education and Sport Science, University of Athens, Greece

**KEY WORDS:** officials, referees, anticipation time, attention, anxiety, basketball

### INTRODUCTION

Athletes, coaches, and officials are the three main constituents of an athletic contest. Officials face as much psychological pressure as do players and coaches (Weinberg & Richardson, 1990). However, while a considerable amount of research has examined the psychological qualities of players, little or no research has been done to examine such qualities of sport officials. Specifically, little research has described the personality characteristics of sport officials or established processes for constructing and measuring officials' competence and effective performance. Cognitive and psychological skills are important factors for successful officiating. Recently, Anshel (1995) has designed and validated a behaviorally anchored rating scale for assessing competence in basketball officiating. This rating scale includes items dealing mostly with cognitive and psychological functions that affect performance.

Basketball has developed rapidly and has become the most popular sport in Greece since 1987 when the Greek national team won the gold medal in the European Championships. After this, competitive situations became very stressful. Coaches, players, and crowds attempt to influence officials' decisions. Quite often, fans are upset by an official's decision that is not in their favor. So are the players, coaches, and administrators. However, spectators behave more negatively than players and coaches. Quite often, officials come face to face with aggressive and violent crowds. Such a negative competitive climate affects officials' emotional states, confidence, concentration, and decision making. Thus, scientific research should be done in support of the successful completion of basketball competitions. The aim of this study was to assess some psychomotor and psychological qualities of Greek basketball officials and to compare these qualities with those of FIBA officials in order to validate psychometric procedures based on accepted theory and their application to sports.

---

Address correspondence to Yannis Zervas, Laboratory of Motor Behavior and Sport Psychology, Department of Physical Education and Sport Science, University of Athens, 41 Ethnikis Antistasis St., 172 37 Dafne, Athens, Greece.

## METHOD

### Subjects

The sample of this study consisted of 256 Greek basketball officials and 32 FIBA officials. Greek officials participated in the yearly evaluation procedures of the officials' federation. FIBA officials participated in a special educational clinic for referees and evaluators.

### Instrumentation

**Psychomotor tests.** A number of Greek officials (n=95) and FIBA officials (n=32) were tested in two psychomotor tests, namely, (a) the Bassin Anticipation Timer (BAT; Lafayette, Model 50575), and (b) the Attention-Concentration Test (Cognitrone; Schuhfried, 1994).

The Bassin Anticipation Timer (BAT) unit was designed to sample and test the subject's dynamic visual activity. The system consists of a solid state control unit, a board with electric bulbs placed at regular intervals, and a response push-button. The objective of the task is to time a response to coincide with the lighting of the last lamp. A response is made by depressing the push-button. The subject predicts when the last lamp will be lit. Error is displayed in milliseconds - early or late. The light sequence travels down the runway at velocities from 1 to 500 miles per hour. In this study a speed of 8 miles per hour was used. Two practice trials and ten regular trials were given to each subject.

Cognitrone is a test of measuring the general ability of attentiveness in clinical and applied psychology. Cognitrone consisted of four figures projected onto the screen of the monitor at eye level. One more figure was projected below the four. The subject was instructed to press a reaction button in any case that this figure was identical to one of the figures shown above. Sixty stimuli were given to each subject (about 2.5 min).

**Questionnaires.** Officials completed four different questionnaires (adapted to the needs of basketball officials) in non-competitive situations to assess sport trait anxiety, sport trait confidence, competitive worries, and the affective states experienced during a recent competitive event. To assess trait sport anxiety, the Sport Competition Anxiety Test (SCAT; Martens, 1977), adapted to the Greek population (Zervas & Kakkos, 1990), was used.

A modification of the Trait Sport Confidence Inventory (TSCI; Vealey, 1986), adapted to the Greek population (Kakkos, 1994), was used to measure the magnitude of sport self-confidence predisposition in various competitive situations.

A modification of the Competitive Worries Inventory (CWI; Kakkos, 1991, 1994) was used to measure the frequency and the intensity of worry which is typically experienced by officials in competitive situations. This form of CWI consists of 20 items dealing with performance worries, social evaluation worries, worries due to the uncertainty of the competition, worries due to feelings of personal inadequacy, and worries caused by external factors (e.g., cooperation with the other official).

The Affective State Inventory (ASI; Kakkos, 1994) was used to measure vigor, tenseness, boredom, and calmness. The ASI consists of 24 items which have a 5-point Likert response format. The development and the validation of this instrument were based on related work in the area of mood states (e.g., McNair, Lorr, & Dropplemann, 1971; Watson, Clark, & Tellegen, 1988; Thayer, 1978a,b).

### **Procedure**

In non-competitive situations, the subjects completed the questionnaires (SCAT, CWI, TSCI, ASI) and were tested in the Bassin Anticipation Timer and the Cognitrone. Also, the subjects were asked to answer a number of demographic, athletic, and officiating background questions concerning age, competitive experience, etc. A number of Greek officials (N=30) were re-tested in SCAT, CWI and TSCI to assess the reliability of these instruments.

## **RESULTS**

The results showed no significant differences between Greek and FIBA officials in: (a) anticipation time, (b) correct, wrong, and missed responses, and response time in the attention - concentration test, and (c) competitive trait anxiety and trait self-confidence (Table I).

The results of this study indicated an acceptable internal consistency, reliability and validity of the questionnaires. The internal consistency of TSCI, as measured by Cronbach's alpha coefficient was .92. Vealey (1986) and Kakkos (1994) reported an alpha coefficient of .93, and .91-.92 respectively. The  $\alpha$  coefficient of SCAT was .83, while Zervas and Kakkos (1990) reported a range of .84 to .89.

Table 1. Means, Standard Deviations, and Differences Between Greek and FIBA Officials

VARIABLES	GREEK OFFICIALS (1st level, N=11)	GREEK OFFICIALS (total, N=95)	FIBA OFFICIALS (N=32)	t*
<i>Anticipation Time</i>	65.7 (18.5)	64.9 (36.2)	62.6 (25.7)	.33
<i>Concentration Test</i>				
Number of Correct Responses	46.6 (5.0)	48.1 (3.8)	48.9 (4.7)	1.03
Number of Wrong Responses	7.2 (4.7)	6.2 (3.2)	5.0 (3.2)	1.92
Number of Missed Responses	6.2 (2.6)	5.7 (2.5)	5.8 (2.6)	.35
Response Time of Correct Answers	158.8 (16.9)	157.9 (13.7)	158.3 (19.1)	.14
Response Time of Wrong Answers	102.7 (49.6)	105.2 (48.1)	97.9 (48.5)	.74
Trait Sport Anxiety	14.5 (4.9)	15.9 (4.2)**	15.2 (2.5)	.87
Trait Confidence	77.6 (8.1)	72.7 (9.1)**	74.2 (12.0)	.85

\* Differences between FIBA officials and the total number of Greek officials.

\*\* N=256

All the ASI sub-scales achieved acceptable alpha coefficients (vigor .87, tension .77, calmness .74, and boredom .71), which are comparable to those reported by Kakkos (1994) for athletes (vigor. 88-.90, tension .83-.88, calmness .85-.87, and boredom .76-.85). The test-retest correlation coefficients for SCAT and TSCI were .73 and .82 respectively. Zervas and Kakkos (1990) reported .90 - .93, and Kakkos (1994) reported .79 - .90 for SCAT and TSCI respectively.

Principal components analysis extracted two factors in the case of the SCAT which accounted for 50.6% of the total variance, where somatic symptoms of stress items load mainly the first factor and the worries items the second factor. The results revealed that TSCI was an unidimensional construct

(which accounted for 53.6% of the total variance). Factor analysis extracted four factors in ASI where the majority of the items met the criteria applicable to communalities and loading values, and were consistent with the anticipated results (direction and factors). However, a small differentiation occurred in the case of CWI, where the results indicated that the selection of three factors accounted for 48.1% of the total variance. The first factor consisted of the items that referred to social critique, the second factor of the worries about unreadiness and external factors, and the third factor represented the performance and social evaluation worries.

## DISCUSSION

The purpose of this study was to examine some psychomotor and psychological qualities of Greek basketball officials and to compare these qualities with those of FIBA officials. Analysis indicated no significant differences in anticipation time between the Greek and FIBA basketball officials. No significant differences were found between the two groups in concentration on all measures, that is, number of correct responses, decision time to correct responses, number of wrong and missed responses, and response time of correct and wrong responses. Also, with regard to competitive trait anxiety and self-confidence, the results of this study indicate that the general population of the Greek officials do not differ significantly from top level officials (i.e., FIBA and first category Greek officials).

Officiating has become one of the most difficult and demanding tasks in basketball competitions. Mental aspects of officiating are important. Officials must be able to control their emotional states under competitive situations. Anxiety plays a critical role in officials' performances. Worries are closely related to anxiety. Anxious officials are more likely to focus on worries than on the task. Anxiety and attention are very much related and interacting. High levels of anxiety reduce both the range and direction of attentional focus and impair decision making. Self-confidence is a necessary quality at all times during a competition and especially at critical times (calls) such as at the end of a game (Weinberg & Richardson, 1990). Thus, validating psychological instruments for officials, using guidelines from accepted theory, and applying them to sport environment, is of significant interest in determining officials' psychological qualities. The results of this study revealed that the questionnaires were of an acceptable internal consistency, reliability, and factorial validity.

These findings provide a basis for psychodiagnosis and comparison between different officials' categories and levels in psychological qualities. Officiating is mostly a cognitive and psychological skill which can be learned and improved. For successful completion of such a task officials need systematic mental preparation. The findings of this study may be useful to design counselling

programs and evaluate the effectiveness of psychological interventions. Additionally, to achieve a more accurate evaluation of officials' psychological qualities, a multi-factorial approach is needed taking into consideration other qualities such as judgment, integrity, consistency, and motivation.

## REFERENCES

- Anshel, M.H. (1995). Development of a rating scale for determining competence in basketball referees: implications for sport psychology. The Sport Psychologist, 9, 4-28.
- Kakkos, V. (1991). Competitive Worries Inventory (CWI): A preliminary investigation. Paper presented at the 8th European Congress of Sport Psychology, FEPSAC, Kologne.
- Kakkos, V. (1994). The effect of cognitive schemata in the subjective cognitive-emotional state before competition. Doctoral Dissertation, Department of Physical Education & Sport Science, Athens University.
- Martens, R. (1977). Sport Competition Anxiety Test. Champaign, IL: Human Kinetics.
- McNair, D.M., Lorr, M., & Droppleman, L.F. (1971). Profile of mood states, manual. San Diego, CA: Educational & Industrial Testing Service.
- Phyllips, C.L. (1985). Sport group behavior and officials' perceptions. International Journal of Sport Psychology, 16, 1-11.
- Schuhfried, G. (1994). Vienna Test System, Version A-2340, Modling, Hyrstrasse 45, Austria.
- Thayer, R.E. (1978a). Factor analytic and reliability studies on the Activation-Deactivation Adjective Check list. Psychological Reports, 42, 747-756.
- Thayer, R.E. (1978b). Toward a psychological theory of multidimensional activation (arousal). Motivation and Emotion, 2, 1-34.
- Vealey, R.S. (1986). Conceptualization of sport-confidence and competitive orientation: preliminary investigation and instrument development. Journal of Sport Psychology, 8, 221-246.
- Watson, D., Clark, L.A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. Journal of Personality and Social Psychology, 54, 1063- 1070.
- Weinberg, R.S., & Richardson, P.A. (1990). Psychology of Officiating. Champaign, IL: Leisure Press
- Zervas, Y., & Kakkos, V. (1990). Validity and reliability of the Sport Competition Anxiety Test (Form A) in Greek population. Athlitiki Psychologia, 4, 3-24.





### **S.3.2. CAREER TRANSITIONS OF ATHLETES**

*Chairperson* : P. WYLLEMAN

---

## CAREER TRANSITIONS OF ELITE ATHLETES: DROP-OUT AND RETIREMENT

Dorothee Alfermann, University of Leipzig, Germany

**Key words:** Career transitions; coping

### INTRODUCTION

Drop-out as well as retirement have in common that they characterize the end of an athletic career. But they differ in some important aspect: Drop-out means the premature termination of a career before the athlete has reached his or her full potential. Retirement means terminating a career because the athlete feels that the time is ripe (mainly due to age or due to having reached the peak). Both, drop-out and retirement, may be perceived as a critical life event which has to be coped with. The end of an athletic career may be regarded as a turning point in life because the athlete has to find a new role which has to be filled in with new goals and activities. In this sense career transitions are role transitions. Very often this task of finding a new role is solved quite successfully. In some cases, athletes get problems to adapt to the new situation. This may result in mental health problems, like depression, or in problems of adapting to the demands of everyday life, like aggressive behavior or a lack of adjustment to job demands. Studies done so far about the process of career transition show that terminating an athletic career may not be regarded as a crisis or a highly critical life event but more or less as a transient phase leading to a higher engagement in job and/or family (cf. e.g. Blinde & Green-dorfer, 1985). Sinclair & Orlick (1994) emphasize the fact that athletes obviously adjust very well to their new situation after retirement from high performance sport but that most have to cope to the new situation. Athletes obviously progress through an adjustment phase meaning that immediately after retirement athletes feel a moderate degree of stress and moderate difficulties in adjusting to their new situation. But most athletes seem to be able to cope with retirement and to involve in new activities, mainly a professional career and family life. Nevertheless a minority might be dependent on professional help.

Dropping out of a career might be more difficult to cope with than retirement. Terminating a career prematurely might leave an athlete in a feeling of distress because success and peak performance were not reached. As the 'mastery phase' (Salmela 1994) was missed the involvement in sport might be seen as a failure and a waste of time. Retirement and drop-out therefore might have very different consequences for transition. In addition there seem to be gender differences in the process of transition with women succeeding less in a professional career and emphasizing more a family life

## Drop out and Retirement

(Wylleman, de Knop, Menkehorst, Theeboom & Annerel 1993). In a German study with a representative sample of elite athletes it became also obvious that females expected their sport involvement to be a less facilitative condition for their job prospects than males (Holz & Friedrich 1988).

In two studies we investigated the subjective causes and consequences of terminating an athletic career from the athletes' viewpoint. The first study concentrated on the causes and consequences of drop-out, the second study dealt with the process of coping with retirement.

## METHOD AND PROCEDURE

Study 1

The first study<sup>1</sup> was a follow-up study with 50 young female track and field athletes from former West Germany (cf. Bußmann & Alfermann 1994). At the first time of measurement our subjects were junior elite athletes aged 16 to 18 years. Four years later (now being between 20 to 24 years old) 15 of the 50 athletes had terminated their career prematurely and 35 still were active in elite sport. As we were interested in investigating the causes and consequences of drop-out the dependent variables were derived from the relevant literature indicating among others that environmental as well as personal variables contribute to success or failure in the course of an athletic career (cf. Bußmann & Alfermann 1994; Salmela 1994). The dependent variables were assessed twice (with a four year time interval) by means of standardized questionnaires measuring personality traits, need achievement (achievement motives, anxiety, endurance) and attitudes toward various social and political aspects of life. In addition structured interviews were conducted with all 50 athletes at time 2, discussing the career development so far and - in the case of drop-out - the causes and consequences as well as the way of coping. The interviews were then content analyzed.

Study 2

In the second study (cf. Alfermann, Sichart & Dlabal, 1993) former elite athletes (mainly track and field) who had been rather successful and who had terminated their career after having reached the mastery phase were asked about their feelings and their coping mechanisms in retrospect. In addition they gave information about their further development in life, mainly with regard to their family life and their professional careers. The questionnaires had been sent by mail to 239 subjects. Nearly half of the males (46%), but only a quarter of the females (28%) sent back completed questionnaires. The final sample was composed of 96 athletes (73 males, 28 females, mean age 38.5 years). The lower return rate of the females might be due to postal problems because females