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MENTAL IMAGERY IN ROWERS DURING PRE-COMPETITION PERIODS

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ABSTRACT

A sample of 16 rowers (eight male and eight female) participated in the study. The Sports Imagery Questionnaire was administered seven days, three days, 24 hours, and three hours prior to competition. The study aimed to investigate changes in the use of five types of imagery, over four time-periods preceding a competitive event using the Sport Imagery Questionnaire (SIQ). Results indicated no significant difference between sexes on all measures of mental imagery. Furthermore, results demonstrated that imagery use in all the five areas of imagery increased as the time to compete drew closer, with a greater use of motivational general imagery than cognitive imagery and motivational specific imagery. These results provide support for previous research in the area of imagery use, as well as extending previous knowledge on imagery use prior to a competition.

Key words: Mental imagery; Rowing; Sport psychology.

INTRODUCTION

During the past 15 years, mental imagery has been among the three most frequently researched areas of sport psychology (Biddle, 1997). These studies have collectively shown that imagery of particular sports skills improve performance in, and learning of these skills (Hall *et al.*, 1990; Murphy, 1990; Gould & Krane, 1992; Murphy, 1994; Perry & Morris, 1995; Gould & Damarjian, 1996; Hardy *et al.*, 1996; Moran, 1996; Biddle, 1997; Martin *et al.*, 1999).

Pavio's functional model of mental imagery has been operationalised in the taxonomy developed by Hall and his colleagues in the form of the Sport Imagery Questionnaire (Hall *et al.*, 1998). The model proposes that imagery plays both a motivational and cognitive role in mediating sport related behaviour, each capable of being targeted toward either general or specific behavioural goals. The functional distinctions between the types of imagery are reflected in differences in imagery content. Motivationally, imagery can represent control of emotion-arousing situations as well as specific goals and goal-oriented behaviours. Cognitively, imagery can focus either on performance-related aspects of the situation such as strategy, or on the motor skills necessary for the performance (Hall *et al.*, 1998).

In their review of the relevant literature of the differential effects of types of imagery used in various sporting domains, Martin *et al.* (1999) have noted specific applications for the five types of imagery measured by the Sport Imagery Questionnaire (SIQ). These applications include skill and strategy learning, modifying athlete's thoughts and beliefs, and regulating arousal and competitive anxiety. In a more recent development of this model, using qualitative methodology with elite athletes, Munroe *et al.* (2000) have suggested further refinements to the functions of the

five types of imagery. Cognitive specific (CS) and cognitive general (CG) imagery are seen to serve skill and strategy *development*, as well as skill and strategy *execution*. Motivational specific imagery (MS) comprises *performance* and *outcome* imagery. Motivational general arousal imagery (MG-A) was found to be associated with *excitement (psyching up), control and maintaining composure*, and *for remaining relaxed* in pre-competition phases. Finally, motivational general mastery imagery (MG-M) performed the function of ensuring *mental toughness, maintaining focus, enhancing self-confidence* and *maintaining a positive attitude* before and during competition.

A question that has not been fully addressed is whether imagery use changes during an expanded pre-competition period, and whether specific types of imagery take on more significance as the competition approached. The period prior to competition has been identified as an important phase for mental preparation in athletes, particularly for the use of mental imagery (Barr & Hall, 1992; Dick, 1997; Martin *et al.*, 1999; Munroe *et al.*, 2000). Dick (1997) has proposed that the pre-competition period be divided into three smaller time units. He labels them as follows: the "long pre-start conditions and mental state" that occurs weeks, days and hours prior to the competition; the "short pre-start conditions and mental state", occurring minutes and hours prior to competition; and the "start conditions" which refers to the mental state seconds prior to the competition.

The present study was designed to assess the reported imagery use by rowers over four time-periods prior to competition. The time-periods selected were equated to Dick's (1997) long and short pre-start conditions. More specifically, the study investigated how the use of the five types of cognitive and motivational imagery as measured by the SIQ, changed over the four time-periods in two teams of rowers prior to a major competition. The findings from a study of this nature could assist in further understanding the use of imagery as the competition approached. The relative use of cognitive and motivation imagery could shed further light on the nature of mental states of the athletes as they prepared for competition. Furthermore, the findings could provide guidelines for further research as well as for more phase-specific mental imagery interventions.

Rowing has been described as "an internally focused sport where individual balance, timing and sequencing of movement *by the entire team* (sic) is crucial to hull speed" (Barr & Hall, 1992: 256). In their investigation, Barr and Hall found that rowers used imagery more in competition than in training, and mostly in preparation for a race. Furthermore, the authors found that rowers frequently used images of winning. These authors suggest that imagery was used for motivation as well as for enhancing self-confidence. At the time of this study, the SIQ had not been developed and there was no investigation of the changes in imagery use in an extended pre-competition period, thus providing the justification for the present investigation.

METHOD

Subjects

Two experienced rowing crews (eight male, and eight female subjects) from a university student rowing club participated in the study. The mean age of the 16 subjects was 20.18 (SD=1.64) with ages ranging from 18 to 24 years. The subjects varied according to experience with rowing having been actively involved in the sport for a minimum of six months, and a maximum of 108 months (M=34.6 months).

The competitive event for which the teams were preparing was the most important regatta of the year at national level. The boat race is an endurance event with a 6.5 km race for men, and a 4.5 km race for women.

Instrument: The Sport Imagery Questionnaire (SIQ)

Hall *et al*. (1998) developed the SIQ to assess the motivational and cognitive functions of imagery as proposed by Paivio's analytic framework of imagery effects. The scale consists of 30 items representing cognitive and motivational imagery content to which the participants respond, to the degree they use imagery, on a 7 point Likert scale ranging from 1 (rarely) to 7 (often). There are four sub-scales including cognitive general (CG) and specific (CS), and motivational general (MG) and specific items (MS). The motivational general subscale was also found to consist of two further sub-scales viz. mastery (MG-M) and arousal control (MG-A) (Hall *et al.*, 1998). Cronbach alpha coefficients for the sub-scales cited by Hall *et al.* (1998), were 0.87 for CS, 0.77 for CG, 0.82 for MS, 0.76 for MG, 0.75 for MG-M, and 0.75 for MG-A. In the present study the Cronbach alpha coefficients based on the pre-event scores were found to be (N=15): 0.69 for CS, 0.70 for CG, 0.92 for MS, 0.75 for MG-M, and 0.71 for MG-A.

The rowers were required to complete the SIQ under the supervision of the junior author at four time-periods. These time-periods were selected according to the guidelines provided by Dick (1997) to provide information on mental imagery use during long and short pre-start conditions, i.e. 7 days, 3 days, 24 hours, and 3 hours prior to competition. The immediate pre-start period was not used as it was believed that this would not only interfere with the mental focus of the rowers, but also not provide reliable information as a result of resistance from the rowers to spend time filling in a questionnaire.

RESULTS

The results of a MANOVA revealed no significant differences between men and women in the use of the five types of imagery over and during the four time-periods. It was thus decided to treat the two teams as a homogenous group for statistical analysis of the data.

Means and standard deviations for the five sub-scales of the SIQ over the four time-periods are reflected in Table 1 below. Furthermore, a graphic representation of the change over the four time-periods is provided in Figure 1. As can be seen from the means and standard deviations, motivation specific (MS) imagery had the lowest mean and the largest standard deviations throughout the four time-periods. Motivational general mastery (MG-M) showed consistently high means and lower standard deviations.

A Friedman's two-way ANOVA was used to investigate the significance of changes in the use of cognitive and motivational imagery over the four time-periods preceding competition.

TABLE 1. **MEANS FOR IMAGERY USE AT DIFFERENT TIMES PRIOR TO COMPETITION**

Time Prior to	MS	MG-A	MG-M	CS	CG

Competition	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
7 Days	4.61	1.52	5.48	0.79	6.06	0.87	5.43	0.79	5.07	1.00
3 Days	4.99	1.28	5.94	0.64	6.34	0.54	5.75	0.76	5.44	0.93
24 Hours	5.19	1.55	6.36	0.64	6.58	0.46	6.26	0.73	6.00	0.71
3 Hours	5.73	1.36	6.69	0.38	6.61	0.45	6.19	0.99	6.01	0.72

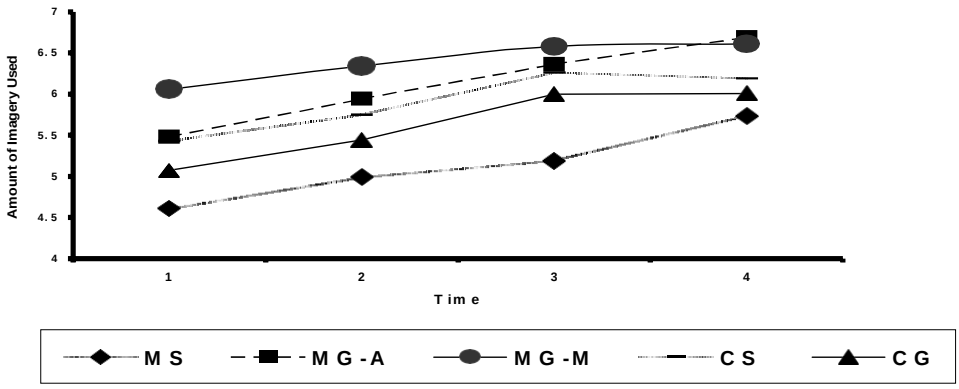

FIGURE 1. **SIQ SUB-SCALE SCORES IN THE FOUR TIME-PERIODS PRIOR TO COMPETITION**

All five types of imagery showed a statistically significant increase in their reported use over the four time-periods. As can be seen in Figure 1, there is a steady linear trend towards more imagery use for all five types of imagery over the four time-periods. The two cognitive sub-scales were a slight exception and had their highest mean scores 24 hours prior to competition. A statistically significant difference over time was found for the following sub-scales of the SIQ: Cognitive General (H^2=20.34, p<.001), Cognitive Specific (H^2=14.34, p=.002), Motivational Specific, (H^2=11.45, p=.01), Motivational General Mastery (H^2=19.36, p<.001), and Motivational General-Arousal (H^2=29.70, p<.001).

Comparison of types of imagery used at each time-period:

A Friedman two-way ANOVA was used to assess differences between the five types of imagery use during the four time-periods prior to competition. A significant difference was found between

the means of the five SIQ sub-scales seven days prior to competition, (H^2=22.73, p<.001). The mean score for Motivation General-Mastery (M=6.06, SD=0.87) was higher than CG and MS (M=.07, SD=1.00 and M=4.61, SD=1.52, respectively).

A significant difference was found for the mean SIQ scores three days prior to competition (H^2=27.86, p<.001). The mean score for Motivation General-Mastery (M=6.34, SD=0.54) was greater than that for Motivation Specific (M=4.99, SD=1.28).

Twenty-four hours before the competitive event, the SIQ scores were also statistically significantly different (H^2=25.85, p<.001). The mean score for Motivation General-Mastery (M=6.58, SD=0.46) was greater than that for Motivation Specific (M=5.19, SD=1.55). The means for the other four sub-scales were all evenly high at this stage.

Finally, there was a significant difference for the SIQ factors as measured on the morning of the competition, thee hours prior to the competition (H^2=21.81, p<.001). The mean scores for Motivation General-Arousal and Motivational General- Mastery respectively (M=6.69, SD=0.38 and M=6.61, SD=0.45), were greater than the mean for Motivation Specific (M=5.73, SD=1.36), whereas the mean scores for Cognitive Specific and Cognitive General were not significantly different.

DISCUSSION

The results of this study suggest that there is preliminary support for a time related change in the use of the types of mental imagery measured by the SIQ in the period prior to competition. There was a statistically significant linear increase in the use of all five types of mental imagery as the competition time approached. These findings lend further support for the importance of mental imagery as a means of managing both the mental and skill-related demands that competition makes on athletes prior to competition. Mental imagery activity increased as rowers prepared themselves in the short and long pre-start phases of competition. The Munroe *et al.* (2000) study, that proposes a model for the function of the five types of mental imagery measured by the SIQ, provides some guidelines for interpreting these findings. It is thus possible that during the week and hours prior to competition, cognitive and motivational imagery both serve the purpose of mentally preparing rowers by increasing their self-confidence, focus, motivation, control, skill and strategy execution, and goal directedness (Munroe *et al.*, 2000). This finding provides preliminary support for, and adds to the understanding of, the differential use of pre-competition mental imagery reported in previous research using the SIQ (Barr & Hall, 1992; Hall *et al.*, 1998; Martin *et al.*, 1999; Munroe *et al.*, 2000).

More specifically, at each time interval, it was found that there was a greater use of motivational general-mastery and arousal imagery (MG-M and MG-A), followed by cognitive-specific, cognitive-general and motivational-specific imagery. The rowers from the outset used significantly more motivational general-arousal imagery. This suggests that controlled psyching up to ensure optimal levels of arousal was very important for mental preparation in this rowing event (Munroe, *et al.*, 2000). The corresponding use of motivational general-arousal imagery also suggests that imagery was used to ensure that mental toughness was maintained in the pre-competition period. In addition, it is suggested by the Munroe *et al.* (2000) model that this type of imagery probably assisted these rowers to remain focused on the task ahead as well as to increase their confidence to row efficiently as a team. One could also argue that three hours before the competition, rowers could have used this type of imagery to ensure that they activated and maintained a "flow state" to enable the crew to work as a synchronized machine (Barr & Hall, 1992; Munroe *et al*., 2000).

Imagery that focused on rehearsing skills and strategies specific to rowing was also reported to be used by the rowers with increasing frequency until three hours prior to the race when there was a significant decrease in the use of skill-related imagery. Munroe *et al.* (2000) suggest that the focus in this type of imagery is in skill rehearsal in training and in skill execution during competition. One could speculate about the reason for the decrease in the use of this type of imagery in the three-hour period prior to competition. It could be that the rowers were focusing on skill rehearsal

and execution during the build-up to the competition in focused training sessions, and that as information relative to the reality of the competition became the conscious mental content, skill rehearsal became less important than maintaining control over internal states relative to maintaining control and focus.

The finding that motivational specific imagery was generally not used as much as the other four types of imagery in the three initial time-periods is worth noting. This is particularly relevant as there was a statistically significant increase in the use of this type of imagery three hours prior to the competition starting, relative to the other three time-periods. The rowers appeared to become more aware of the importance of imaging their performance and the outcome of the performance as they prepared for the event and as the mental and physical demands of the competition entered consciousness more frequently. These findings are similar to those reported by Hall *et al.* (1998), who found a greater use of motivational than cognitive type imagery with competition (when it was too late to get any better by cognitive learning, but where performance and goal seeking was maximized). These findings also suggest that when teams or individuals are compared for the use of mental imagery prior to competition, time needs to be controlled as an important independent variable. All athletes would thus need to be assessed at the same time-period prior to competition.

The relatively small sample size used in this study limits the generalisability of the results to other rowing teams and other sport types. However, the finding that a linear trend in the use of the five types of mental imagery measured by the SIQ could be used to test this finding with larger samples and in different sport types. It was also not possible in this study to obtain data at a time interval much closer to the competition than three hours. Furthermore there is yet no adequate method of evaluating an athlete's subjective experience *in the process* of competition. Therefore, the true pattern and shifting patterns of mental imagery use in competitive situations remains elusive and dependent on retrospective recall. The effect of practice on the reporting of imagery use is also a variable that will need to be considered in future research that investigates time-related changes in imagery use. It may well be that the repeated use of the same questionnaire could have lead to a priming effect and that as a result, more imagery is reported to be used.

Finally, the difficult question is whether imagery during and before competition is generated deliberately or automatically, and whether there is a subsequent differential effect on performance. Annett (1995) has indicated that the relationship between imagery use and performance has not been clearly demonstrated and there is definitely room for a more complete understanding of the complex and essential relationship between body-mind states and imagery generation as a response to organismic homeostasis.

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THE SOUTH AFRICAN INDIGENOUS GAMES RESEARCH PROJECT OF 2001/2002

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ABSTRACT

Research on indigenous games and play behaviour within the South African context has to a great extent been ad hoc, and influenced by theoretical traditions and practices. Informed by global research trends and national interest, a research project was undertaken in an attempt to address the need for indigenous knowledge-

research. This paper reports on the National Indigenous Games Research Project of 2001/2002 in which eleven tertiary institutions collaborated. Researchers from these institutions collected data from 6489 participants through questionnaires (quantitative data on trends, content and nature of games), triangulated with focus groups, case studies, observations and visual recordings (qualitative data). The sample is representative of the ethnic, gender, geographic (urban and rural), and socio-economic diversity in all nine provinces of the Republic of South Africa. A rationale is offered for an ethno-scientific taxonomy, representing a culturally informed reconstruction of South African children's games. The paper explores and reports on game preference, socio-cultural themes and play behaviour. An analysis of the theoretical underpinnings, participant-constructed meanings, reasons for playing and play patterns are reflected upon.

Key words: Indigenous games; Play; Culture; South Africa.

INTRODUCTION

Historical sources bear witness to play behaviour and types of games documented since pre-historic times. Rock paintings and engravings represent sporting activities, scenes of combat and a wide spectrum of play manifestations from early civilizations in the African continent (Hirth, 1991). Historical evidence informed early academic interest of social historians and anthropologists who traced patterns of diffusion and acculturation over different continents and historical periods. Generalizations were made by anthropologists and historians with the intent of reconstructing games, tracing game origins and offering explanations on cultural contact between members from different geographical areas (Opie & Opie, 1959). The functionalistic and structural approaches provided the framework for analyses, constructions as well as for cross-cultural game typologies and comparisons (Cheska, 1987; Callois, 2001).

An understanding of play-related behaviour and games as a subject worthy of scholarly investigation, dates back for more than a century to the anthropological contributions of Sir Edward Burnett Tylor and Stewart Cullin. In terms of cultural analysis and classification, they set the scene for folklorists and other social scientists (Blanchard, 1995). Ethnological insights and the ideology of cultural relativism also drew from interpretive models such as Geertz's (1983) account of the Balinese Cockfight where symbolic messages about a social

life provided rich descriptions and cultural relativist interpretations. It paved the way for ethno-scientific investigations and the construction of 'cognitive domains' by members of a certain culture (D'Andrade, 1995). Interpretivism recognizes the researcher and local knowledge that co-produce the cultural reality of play and games through polyphonic text and cultural mediation and interpretation (Denzin & Lincoln, 1998; Sands, 2002). Micro-analysis and description place emphasis on the lived realities of participants, and may also utilize other theoretical perspectives for understanding and analyses.

From the psychological and biological sciences research, interests related to the analysis and therapeutic implications of play behaviour, whereas the didactical research, informed by ecological taxonomies of play, stemmed from an interest in child development and socio-cultural learning (Avedon & Sutton-Smith, 1979; Cohen, 1993). Qualifying the self-expressiveness and environmental control characteristics of play behaviour, the recreation theory of play ties in with the psycho-analytical framework, as it postulates that play is utilized by individuals to recover from work-related activities and to restore energy (relaxation

theory) (Levy, 1978).

Social psychologists studied the role of play in the socialization process and applied the psychological dynamics to educational practices (Avedon & Sutton-Smith, 1979). In this sense it has bearing on didactical paradigms that have been explored by ecological taxonomies of play and developmental frameworks (Cohen, 1993). Piaget and Chateau (in Levy, 1978) offered a developmental rationale based on the cognitive interaction with the environment through assimilation and accommodation, whereas other educationists utilized the teaching of games and analysis of game behaviour as means of 'role-taking' and preparing players for life in society (Calhoun, 1987; Utuh, 1999; Callois, 2001).

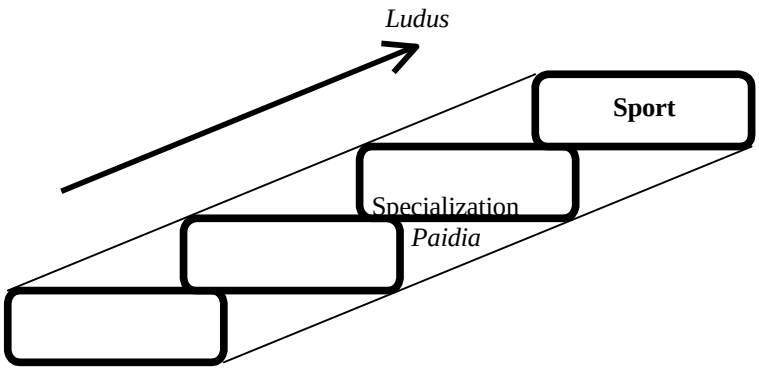
Utilizing insights from diverse disciplines and practices, play theorists (Cheska, 1987; Van Mele & Renson, 1990; Callois, 2001) meaningfully contributed to the development of a comparative framework for documentation, analysis and classification of play-related behaviour relevant to the socio-cultural context of societies.

It is evident that over the years, research on play, games and traditional sport has been guided by paradigmatic frameworks and perceived practical value that impacted on the conceptual framework, methodology and conclusions (Roopnarine, 2002). Tapping into these diverse theoretical frameworks, the aim of this paper is to: a) provide a rationale for the National Indigenous Games Research project conducted in the Republic of South Africa during 2001 and 2002 (National Project 2001/2002) that would guide the methodology and knowledge-construction, b) utilize the ethnic-scientific conceptualisation as a 'cognitive map' for the classification of indigenous games; and c) report on the findings of the National Project 2001/2002.

PLAY-RELATED PHENOMENA

The interrelatedness of play-related phenomena and the presence of play-like behaviour within games and sport contribute to the complexity of these aspects. The structural and semantic qualifications inherent to the different play-related phenomena necessitate differential treatment within a framework for analysis and classification. Play behaviour is not easily constrained to conceptual categories, as it possesses biological and cultural dimensions.

There seems to be a progression from a self-structured activity done for it own sake (play) and an activity directed by rules (games), to an activity that is an instrumental event and is essentially officiated or judged (sport) (Suits, 1973; Schwartzman, 1983). The fluidity and spontaneous character of play activities that Callois (2001) referred to as *Paidia* (tumultuous exuberance) represents one end of the continuum that moves to more organized forms of competitive rivalry (contests), from rule-bound games to activities with an increase in the structuring or *Ludus* (Callois, 2001). Games possess structured content for description and analysis that in its institutionalized form as sport, adheres to universal laws and the quest for excellence and external rewards (Guttmann, 1978; Harris & Park, 1983). Cheska (1987: 14) places 'games' as fluctuating between the activity poles of play and sport in which "play stresses more the participant's expressiveness" and "sport stresses the participant's instrumentality or the achievement of some goal". The play-sport continuum as adapted from Guttmann (1978: 9) and integrated with Callois' categorization (2001: 36) serves as a heuristic tool to distinguish between the structural aspects and semantic qualifications of these phenomena.


Ludus
Sport
Specialization
Paidia

Games

Contests

Rule-bound

Competetive

Play

Spontaneous

FIGURE 1. **PLAY-SPORT CONTINUUM ADAPTED FROM GUTTMANN (1978) AND CALLOIS (2001)**

Despite the distinct characteristics of the different play-related phenomena, the boundaries become less clear in real-life settings. At the conceptual level, the practice of play meets certain observable criteria but on the attitudinal level, an activity may thus be considered as being 'play', 'game' or 'sport' where the intension of the player ('emic' or insider's approach) and context of the activity, predominantly determine the categorization of the activity (Harris & Park, 1983; Meier, 1988; Sands, 2002). Due to the focus on indigenous games, play behaviour in this paper is viewed as an integral part of these games in which it finds individual and cultural expression and meaning.

INDIGENOUS GAMES

Indigenous games are viewed as being recreational and characterized by organized play that follows a certain structure and flow according to agreed-upon rules that reflect a socio-cultural dimension of reasoning and behaviour (Van Mele & Renson, 1990). The term 'indigenous' needs to be viewed in the historical and cultural context with reference to related labels such as 'traditional', 'contemporary' and/or 'modern'.

Van Mele and Renson (1990: 16) distinguishes between traditional and modern sport forms as the former are recreational activities with local and cultural dimensions, having roots in traditional life of people and are distinguishable from later adaptations as being "contemporary traditional games". The 'traditional' label represents a time dimension of being preserved and transmitted from one generation to the next among a particular group (Van der Merwe, 1999). In this sense, traditional games communicate localized ethnic and socio-cultural identity of earlier times (Hirth, 1991).

Some traditional or functional play activities became absolute and others were adapted in new environments (Van der Merwe & Salter, 1990). Over time, the religious and/or communal rituals disappeared from earlier games and were replaced by the trappings of modern competitions such as in the Afghan *buzkashi* game, Spanish bullfighting or Japanese Sumo wrestling (Guttmann, 1994: 6, 158-160). These forms are however recognized as being 'indigenous'.

Indigenous knowledge and games within the South African context, reflect the circumstances, traditions and cultures of the various population groups and communities which have been identified by the people as being part of their cultural heritage (Corlett & Mokgwathi, 1986). In this sense the Afro-centric nature of knowledge and games form an integral part of the Nguni, Sotho and Venda-speaking peoples as they originally migrated from the central lakes of Africa and settled in the southernmost end of Africa, during the 12th century (Junod, 1927; Schapera, 1966). In the same way a more Euro-centric and Oriental knowledge base is reflected by the Afrikaans- and English-speaking minorities that include people from European, Asian and Indian descent (Stow, 1905; Bailey, 1991). Another pool of indigenous knowledge and games derived from the traditional life and livelihood of the Bushmen and

Coloured races (Afrikaans and English-speakers), also known as the Khoisan, (collectively referring to the San or Bushmen as the original inhabitants of South Africa and the Khoi or Hottentots) (Van der Merwe, 1999).

Culture is never static and emerging play patterns and games develop through acculturative influences such as cultural exchanges in schools and the western-based sport (Van Mele & Renson, 1990). The acculturation process most common to play and games, is known as syncretism which refers to a process by which ideas from one culture are adopted by another so that what ultimately evolves, are actually novel ideas and manifestations (Blanchard, 1995). Indigenous games were identified (from and 'emic' or insider's perspective) as indigenous ('belonging to us'), having been passed on between generations ('traditional') or created locally ('indigenous'). Another criteria for the identification 'games', is that of requiring structure and rules. In this sense, spontaneous play such as 'throwing mud' or playing with dolls (games that demonstrate no clear organization or rules), were excluded from this research.

Having identified and documented indigenous games, the following conceptual challenge was the categorization of games. A literature survey revealed various directive frameworks for categorizing games, with relatively few academic contributions to the rationalization behind classification systems and game-related taxonomies.

THE CLASSIFICATION OF GAMES

A major thrust for the development of fundamental and universal categories relevant for cross-cultural research, came from Callois (2001) who proposed four broad categories for the classification of games, namely competitive games (*Agôn*), games of chance (*Alea*), simulation games (*Mimicry*) and games that are based on the pursuit of vertigo (*Ilinx*). Within each of these categories, he placed the games along a continuum from *Paidia* (spontaneous play) to *Ludus*, representing an increase of elements of discipline, rules, skill, problem solving, conventionality and institutionalisation (Harris & Park, 1983).

Classification parameters for cross-cultural analysis were developed through anthropological frameworks, despite the earlier attempts of folklorists to document, classify, analyse and explain the cultural dimensions of traditional games (Opie & Opie, 1959; Avedon & Sutton-Smith, 1979). Redl *et al*. (1979) developed 30 such categories to represent the 'dimensions of games'. Within a broad anthropological paradigm, Cheska (1987) developed a typology of games based on their structural characteristics which deductively informed several South African based studies, which set out to contribute to the preservation of ludodiversity (Goslin & Goslin, 2002), to contribute to the existing body of knowledge by classifying games according to the 'basic idea of the game' (De Jongh, 1984) or movement content (Saayman & Van Niekerk, 1996).

In search of a cross-cultural model for the classification of traditional games, local researchers (Van der Merwe & Bressan, 1995) applied the seven-category classification system of Cheska for the categorization of the traditional games of the Xhosa of South Africa, by utilizing documented sources. This type of deductive research posed methodological dilemmas (an analysis of 11 historical documentations of Xhosa games) and epistemological problems (inadequate socio-cultural and ethnographical data). The present research explores an ethno-scientific framework derived from inductive empirical research and as such, provides a model for cross-cultural comparisons of the cognitive process (classifying indigenous games) and the

product (a taxonomy of indigenous games).

THE INDIGNEOUS GAMES RESEARCH PROJECT 2001/2002

Background

Indigenous games research in South Africa has over the years received sporadically ad hoc attention without any inclusive, co-operative and systematic effort to compile a representative inventory of traditional play patterns, adequate historical and social-cultural contextualization and interpretation (Van der Merwe, 1999). In 2000, the National Research Foundation established a research programme to support and promote research in the Indigenous Knowledge Systems (IKS) in South Africa. The South African Sports Commission had already embarked on promoting indigenous games in the different provinces and co-funded this research project to enlarge the geographical representation and produce a national profile in this regard (Burnett, 2001).

In response to this initiative, senior researchers were recruited from 11 Human Movement Studies or related departments at tertiary institutions in South Africa. The first phase of the project in which students, researchers and fieldworkers were provided with a comprehensive

research manual (Burnett, 2001) was launched in February 2001. Orientation and training sessions were held to equip them for gathering representative and comparative data through similar procedures and methodology. The second phase was completed in January 2002, by which time researchers had completed their fieldwork and received reciprocal feedback as part of the monitoring and assessment procedures. The third and last phase entailed consultation with researchers and the production of the national report by September 2002. Two clusters of regional statistical data came in late which caused some shifts in the quantitative data that was published in the preliminary report (Burnett & Hollander, 2002).

Methods

Quantitative data was collected through the completion of questionnaires (adapted from De Jongh, 1984) by a representative sample of grade seven learners and senior citizens. The participants were randomly selected with prior allocation of participants from different cultural, language and/or population groups.

Qualitative data was collected through structured interviews (case studies), focus groups and observations of play activities. After a complete list of games had been compiled, the research participants were consulted through interviews and/or focus group sessions to classify the games according to descriptors or cognitive labels suggested by them. Visual and tape recordings assisted in the capturing of songs, physical skills, strategies and play patterns. Once the qualitative data was collected, it was transcribed, coded and classified.

The different methods of data collection ensured the validity and reliability of the data. Triangulation was thus achieved by utilizing different methods and different researchers in the data-collecting process.

Geographical Spread

Due to geographical ethnic representation of the research, a target was set for each tertiary institution to conduct research in urban and rural communities, representing the major ethnic

and/or language groups within a region. Except for the University of Durban-Westville and the University of Zululand that individually focused on the Indian and Zulu-speaking communities respectively, the other nine institutions focused on collecting data on the indigenous games of the main population groups within a radius of about 150 kilometres from their institutions. The Rand Afrikaans Universtiy, Technikon Witwatersrand, Stellenbosch University and the University of the North volunteered to cover a wider geographical spread in Mpumalanga, Northern and Western Cape and the Limpopo Province respectively (see map, Figure 2).

Sample

In total 170 communities (89 urban and 81 rural) took part in the research, representing all four major population and 11 language groups in the nine provinces of South Africa. Three thousand four hundred and one (3 401) grade seven learners completed questionnaires and an additional two thousand and sixty (2 060) also took part in focus group sessions. Data was also gathered from one thousand and twenty eight (1 028) senior citizens who completed questionnaires, participated in focus group sessions, and/or were interviewed as case studies to provide the context and content of traditional play patterns and games.

The 'ethnic' representation of the sample (N=6 489) also reflects the representation of the language groups, as participants from the black population group (30%) indicated an African language as their first language, whereas participants from the white population group (38%), and coloured population groups (30%) were more or less equally represented by Afrikaans and English speakers. The Indian population group (2%) indicated English as their language of communication.

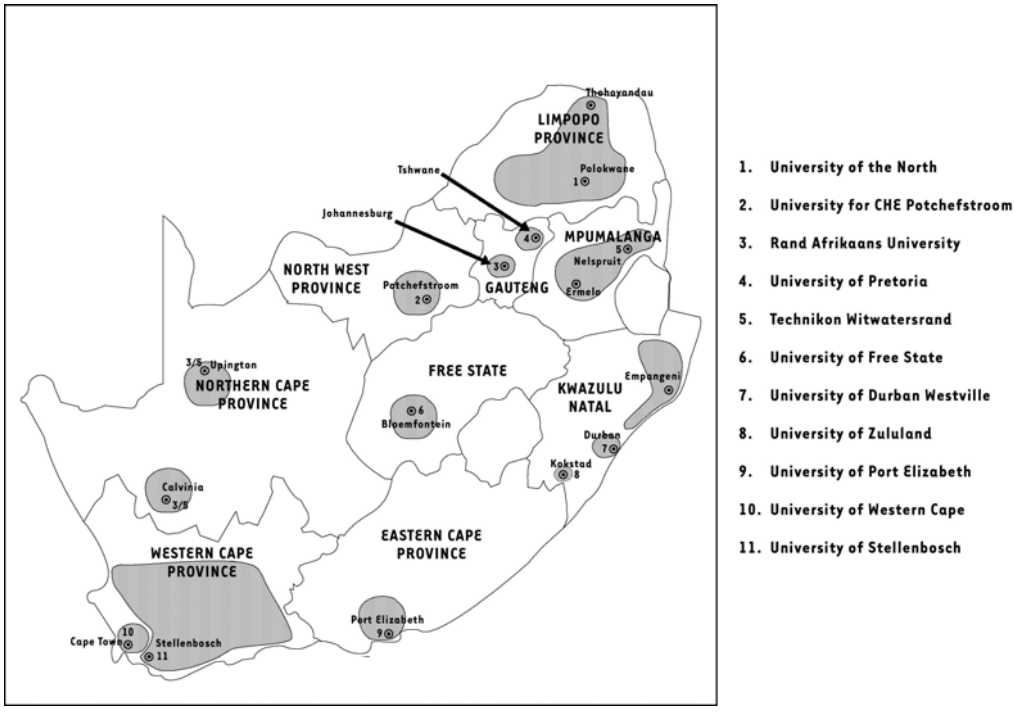


FIGURE 2. **GEOGRAPHICAL SPREAD OF RESEARCH INSTITUTIONS AND**

AREAS

RESULTS

The classification of games

A total of 536 indigenous games were identified and collected although a relatively large number of the games seem to be variations of similar games. There were 37 variations of *Rope Jumping,* 18 variations of *Hide-and-Seek* and 13 of *Hop Scotch* alone. Participants also utilized different frameworks for classifying the games, although the differences mainly existed along the lines of age, rather than any other denominator. Senior citizens mainly utilized 'place' (indoors versus outdoors), 'context' (hunting or different social gatherings), 'intension' (lover's games) or 'apparatus' (ball games) as category indicators. Differences between the categorization of games based on race and environment were mainly in the presence of more subcategories among the white and coloured children from urban areas, as opposed to their Indian, black and rural counterparts. Children mainly differentiated between

physical, imitative and mind games and added psychologically informed sub-categories of 'challenge', 'strategy' and 'interaction', as well as qualifying the movement content in terms of a 'rhythm and singing' category of games. Children identified 'games of imagination' as those games in which role-play in terms of acting out a story and miming or imitating different characters, are prominent. The last category identified by the participants allows for the grouping of games that are mainly determined by a form of interaction with the 'environment' ('hunting games') or 'context' ('party games' or 'boeresport'). Counting rhymes are perceived as a 'count-out activity' and they serve the purpose of acting democratically and fairly in the allocation of certain tasks or roles.

It should also be noted that three regional reports made use of Cheska's classification of games, and three others did not follow the same procedures for an 'emic' classification. However, an attempt was made to construct a representative taxonomy (see Figure 3).

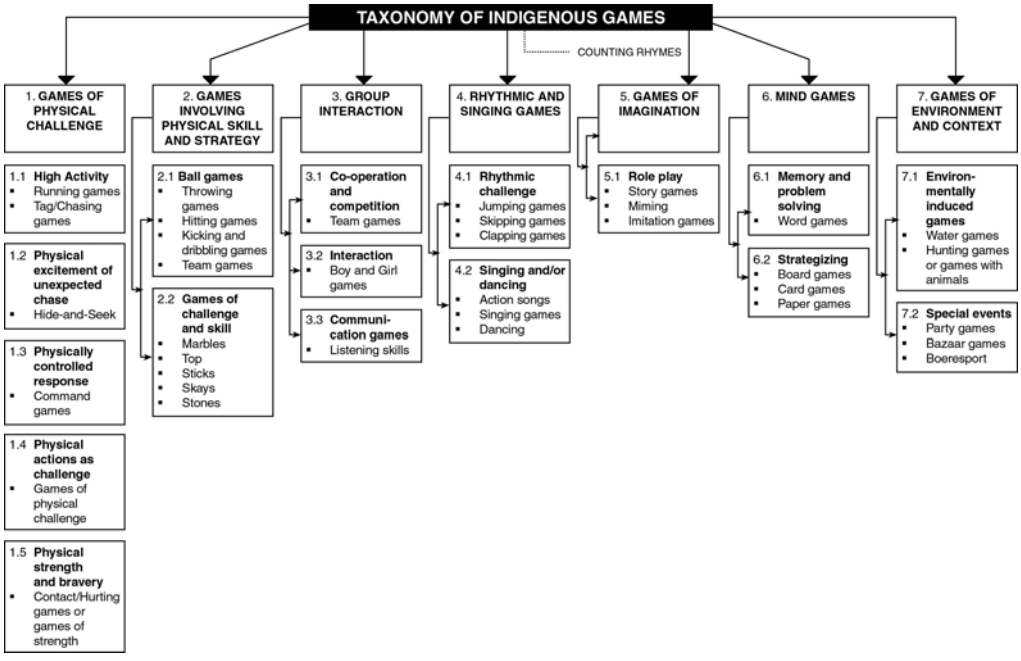


FIGURE 3. **THE TAXONOMY OF INDIGENOUS GAMES CONSTRUCTED BY SOUTH AFRICAN CHILDREN 2001/2002**

The construction of this taxonomy reflects mainly the biological and psychological orientation of players that is linked to the aim, intention or perceived nature of the game. The only category falling outside this paradigm seems to be the more traditional or environmentally determined games where either the medium (water), functionality or survival (hunting) or special occasions (a party, a bazaar or traditional sport day) bear witness of the particular context and cultural content.

Indigenous games' profile

By ranking the games according to the percentage of children who either know or have played them, an overview is provided of the popularity of the games. It should also be noted that the games are known by different names and even if a game is known by a particular name among children from a specific language group, the alternative names are also listed so as to indicate the relevant cluster of games. Due to limited space on the graph, only some of the names of games within a particular cluster are presented. The graph (Figure 4) illustrates the ranking of the 20 most popular games as identified by all participants from different population groups who completed questionnaires. The twentieth most popular games (*Kettie* and *Stickfighting)* represent two different games and do not indicate a cluster.

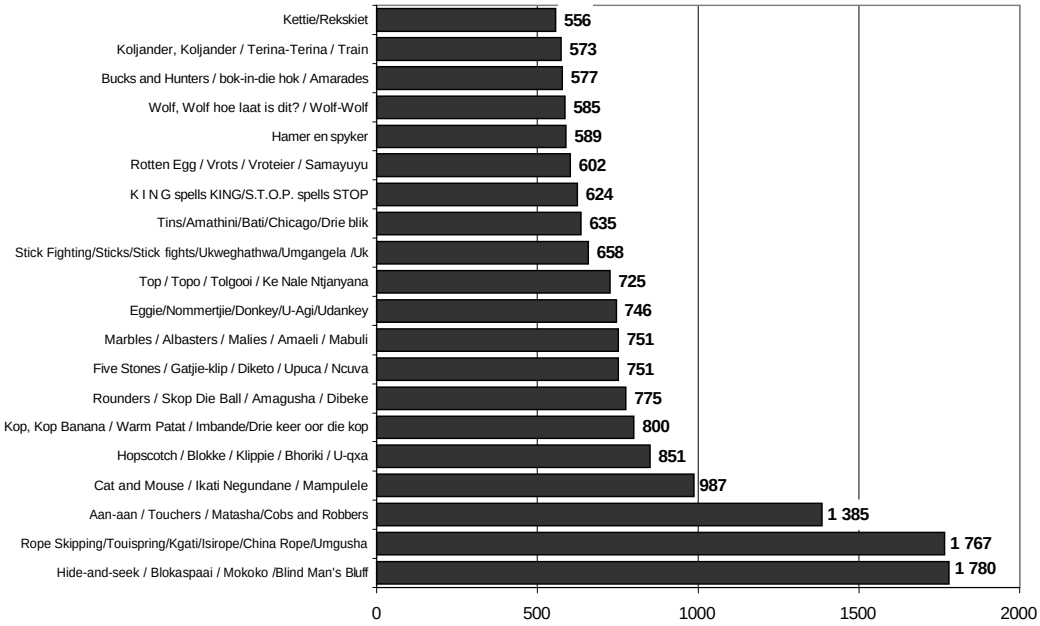


FIGURE 4. **RANKING OF INDIGENOUS GAMES BY ALL PARTICIPANTS**

Due to the limited space and comprehensive data, the ranking of games by different population groups will only be summarized and not exposed in graph format well. It should also be noted that the quantitative data obtained from the questionnaires is merely an indication of the popularity of games, as other qualitative methods (focus groups and

observation) may render a different picture.

Traditional games were particularly popular among the following population groups, namely *Diketo* and *Marabaraba* (black participants), *Warm Patat* and *Hide-and-Seek (*coloured participants), *Three Tins* and *Top* (Indian participants) and *Koljander, Koljander, Wolf, Wolf hoe laat is dit?, Kennetjie* and *Hide-and-Seek* (white participants). *Carrom*, a traditional game among the Indian and the Cape Coloured community is played less extensively, as these participants rated *Hide-and-Seek*, chasing, rhythmic and challenging games (such as *Marbles* and *Top)* of western origin as the most popular games. A similar trend is evident among the

other population groups, with the exception of *Rope Skipping* as the second most popular game among the black participants. The games reflect the preference of 'younger players' as boys and girls used to play together and embarked on playing within the same age peer and gender group in games where physical strength and motor skills play a more important role (such as in chasing games like *Tag, Rounders, Stickfighting* and *Buck-and-Hunters*).

From the results it can be deducted that the majority of children prefer to play games in which the unexpected chase provides excitement and a challenge. *Hide-and-Seek, Tag (Aan-Aan), Kop, Kop Banana, Cat and Mouse* and *Warm Patat*, require no apparatus, yet they offer children the physical and psychological excitement of 'the chase' (see Figure 4). The second most popular category of games entails rhythmic jumping as in *Rope Skipping* as well as in *Hopscotch* that is the fifth most popular category of games (see Figure 4). Another category of the most popular games are games of challenge that provide the challenge of competing and of physical skill such as *Top, Kettie* and *Marbles*. Fine motor skills, hand-eye-co-ordination and concentration are required in these games which challenge an opponent in play.

Socio-cultural aspects

The more senior participants in the research indicated that they lived mostly in the rural areas in relatively large family units. As children they always had family members and/or friends to play with on the farms. Especially boys went out hunting and filled the time with wrestling, boxing or hunting games which also involved dogs and/or the hunting and gathering of food (birds or insects) and materials (clay, sticks, grass etc.) from the natural environment. These they utilized to construct toys, implements or other play items. Children from African descent used to meet in the natural environment while tending their livestock. Under these circumstances they found creative means to make their days interesting and enjoyable. They often resorted to utilizing their livestock in certain games such as *Bullfight.* They sometimes also resorted to inter-village challenges to prove their 'superiority' in certain forms of activity.

The migration of people to the cities and towns and the changes in subsistence farming and a traditional way of life, not only changed the behaviour patterns of people, but also found expression in different content of games. This was the result of having been exposed to westernized education and sports, Christianity and westernized means of transport, value-systems and ideology.

Post 1994, due to the new political dispensation, there was a substantial migration of children from different population groups into English-medium schools, resulting in a racial mix in these English-medium schools. As children predominantly learn indigenous games from their peers and play these at schools, it created a new context for the development of indigenous games in the future. The creation of indigenous games is to a large extent in the hands of

children who express themselves through the games, and who also add cultural heritage of their own accord to these games.

People are to a large extent, products of their environments and living conditions to which they react. This may explain the popularity of water games among children who have access to dams and/or swimming pools and the absence thereof among children who don't have these facilities. The majority of children who completed questionnaires indicated that they played games mainly at their respective homes (30%, n=1 889), at school (27%, n=1 752), in the

street (23%, 1 492) or in an open veld or park (16%, n=1 038). Only 4% (n=260) indicated 'other venues' as play areas. This corresponds to the most popular times of play, being either during break at school or during the afternoon or evenings at their respective homes. Living conditions of the more affluent children who have access to private gardens resulted in their playing in smaller groups within the confinement of this type of private space. In some urban areas children were prohibited from playing in open spaces due to safety reasons, whereas in townships, children often take to the street in relatively big numbers (young and old join together in playing).

Educational or recreational trips organized by schools or churches, provided opportunities for play and the learning of games such as *Stalk the Lantern* or *Lantern Bekruip.* Twenty percent (n=1 298) of the respondents indicated that they were introduced to games during such outings. Traditional games or games that carry specific cultural content and are suitable for larger groups, were often structured to be played at special events of meaning to certain groups. Twenty-one percent (n=1 363) respondents indicated that they were introduced to traditional games such as *Boeresport* at New Year celebrations or at National festive days. Informal social gatherings and parties were indicated by 22% (n=1 428) as favourite occasions for playing games. This result corresponds with the finding that children seemed to be predominantly responsible for creating, playing and teaching other children indigenous games. Fifty-nine percent of the respondents (n=3 829) indicated that they had learnt the games from 'older children' (24%, n=1 557) or their peers (35%, n=2 271) in comparison with significant others, namely parents or family elders (21%) and teachers (10%) who were identified as social agents for teaching and facilitating participation in indigenous games.

Acculturation resulted as games and modern sport forms were imported and adopted from other cultures. They were however assimilated and transformed to become a unique expression of local cultures and contexts. Although children developed sports-related skills, games such as *Kitchen, Dibeke,* and *Donkey* were locally created in a similar vein as many of the other indigenous games played by children from the different population and/or cultural groups.

The climate also impacts on the context in which games are played. The majority of games were played during summer (32%) and spring (26%) compared to slightly lesser participation during autumn (22%) and winter (20%). With the exception of water games being played mainly during summer, there was no other preference expressed for games being played during specific periods. Participants indicated that sport-related games are usually played during the season when the sport is practiced at the school (such as *Kitchen* being played during the 'soccer season'). Games are however mostly played as 'fads come and go'. Some children may start playing *Marbles,* and others will follow suit.

Gender patterns of play also emerged. Singing and rhythmic games are more popular among

girls who perceive these as being appropriate for them. Although boys from the black and coloured population groups often join in the rhythmic jumping and singing of games, white boys mostly shy away from such games. Boys overall tend to display a liking for more aggressive and 'rough' type of games where physical strength and bravery play a dominant part. Bigger boys most often dominate the central play areas at schools with such physically challenging games such as *Stingers.* Girls and younger boys are seldom allowed to join in such games, or they would prefer to play elsewhere. As girls often sit and talk or eat a snack

in small circles, they frequently play clapping games such as *Vlieë Vlieg* or mind games such as *Broken Telephone.*

Age also impacts on game preferences and the majority of children indicated that they had mostly played imitating games when they were younger. Role-play and imitating adults or chasing games in which 'scary characters' such as monsters, wolves or 'mad people' are imitated, are played mainly by the younger generation, whereas 'chasing' and 'challenging' games in which co-operation and competition between team members exist, are mostly played by older (children from age 11 and upwards). This could be due to the fact that children are increasingly exposed to team games and are better equipped (physically, psychologically, socially and cognitively) to participate and compete in teams at a certain stage of their development. Different theoretical frameworks including the biological, psychological, social and didactical research paradigms support this conclusion (Calhoun, 1987; Cohen, 1993; Callois, 2001).

The children offered the following reasons for engaging in the play of indigenous games, namely to:

- keep occupied and entertained;
- improve mental alertness;
- have fun and enjoy playing;
- relax and 'take a break' from learning;
- be active, exercise, stay healthy and counter hyperactivity;
- be seen as children by adults;
- keep out of trouble ('naughty things');
- socialize with friends and make new friends;
- compete and get recognition when winning;
- 'tackle' and 'play rough' (boys);
- improve co-ordination and skills;
- sing and keep the rhythm when jumping or clapping – 'it's a challenge'.

It seems that children play firstly to entertain and amuse themselves with games that they find enjoyable, fun and challenging. This perception relates to the relaxation theory that postulates that play is in essence revitalizing and essential to serve as balance against the stress from survival and occupational activities. Kinesthetic experiences of 'rough play', complex and repetitive rhythmic movement patterns, applying motor skills and co-ordination challenges stimulate the seeking and enjoyment of excitement. Satisfaction derived from such motor challenges corresponds with the popularity of chasing, challenging and competitive games in which the experience of success and recognition is highly acclaimed. This finding is substantiated by psycho-biological and social theories. The latter also supports the notion of children to demonstrate acceptable social values ('behaving as children' and 'keeping out of

trouble'), and engage in activities which contribute to social bonding and interaction with friends.

CONCLUSION

The SA Indigenous Games Research Project of 2001/2002 posed unique challenges for the discovery and documentation of the indigenous knowledge system relating to the physical and game culture of different ethnic groups within South Africa. In the view of developing a multi-faceted conceptual framework for classification and analysis, a historical and socio-cultural picture and mapping of indigenous games may emerge to form a basis for future research, documentation and implementation.

In essence, children still play and also create or adapt many games to satisfy a variety of physical, psychological, social and cultural needs. They are instrumental in perpetuating this facet of indigenous culture in which their lived realities find expression. Adults are peripheral, yet instrumental as guardians and facilitators of traditional cultural content and values that are passed on through the process of socialization in which children may acquire competencies and knowledge as cultural bearers within a specific and wider society. The dissemination of results should therefore focus on addressing manifested and latent needs of South Africans and relevant stakeholders who have an interest in the application, promotion and nurturing of indigenous games as a cultural resource.

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'N KURRIKULERINGSRAAMWERK VIR VOLHOUBARE SPORTBESTUUROPLEIDING IN SUID-AFRIKA

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ABSTRACT

The world-wide professionalisation of sport has created an increasing need for trained sport managers. This requires that curricula and training programmes be relevant and scientifically valid. Various problem areas can, however, be identified within the field of sport management training. This article describes the methods and results of research done amongst practising sport managers at the top, middle and operational level in South Africa with a view to identifying knowledge and skills components necessary to compile curriculation guidelines in sport management at levels 5 to 8 of the National Qualifications Framework. The study comprised a questionnaire survey, focus interviews as well as individual interviews involving 132 respondents representative of the three above-mentioned management levels, between June and September 2002. The results of the study indicated, inter alia, that the sport management industry in South Africa is exceptionally varied, politicized and complex. Both small and large sports organizations exhibit similar and different needs with regard to sport management and the accompanying sport management training. Various potential learning focuses with varying scope were identified in the survey. They form the basis of the guidelines for sport management curricula that have been recommended as a result of the survey.

Key words: Sport management training; Sport management curricula; Higher education curricula; Undergraduate programmes; Postgraduate programmes.

INLEIDING

Dit is van kardinale belang dat sportbestuuropleiding sportbestuurders oplewer wat hul plek in die sportbestuurbedryf beide in Suid-Afrika en elders kan vol staan. Die proliferasie van programme en die toename in studentegetalle dui enersyds onder meer daarop dat daar 'n groot behoefte aan hierdie soort opleiding is, maar andersyds stel dit ook die eis dat die inhoude en vaardighede wat deur programme gereflekteer word voortdurend nagevors word om die effektiwiteit daarvan te bepaal. Laasgenoemde kan grootliks daartoe bydra dat studente oor bevoegdhede beskik wat hul bemarkbaarheid in die sportbedryf kan bevorder.

Die nuwe uitkomsgebaseerde benadering tot onderwys (UGO) in Suid-Afrika noodsaak hoëronderwysinstellings om hierby aan te pas (Carl, 1995; Du Pré, 2000; Breier, 2001; DOE, 2002). Hierdie UGO-benadering geskied toenemend binne die raamwerk en bepalings van die Suid-Afrikaanse Kwalifikasie-owerheid (SAKO) (Genis, 1997; Geber & Munro, 1999; Killen & Spady, 1999). Min leiding word egter ten opsigte van hierdie vereistes aan

[1] Hierdie artikel is afkomstig van die eerste outeur se doktorale studie aan die Universiteit Stellenbosch.

opleidingsinstellings en dosente gegee en daar kan verwarring ontstaan oor presies wat van rolspelers verwag word. Dit is dus noodsaaklik dat hierdie nuwe benadering effektief ontsluit word en dat kurrikula en programme aan die nodige eise voldoen.

PROBLEEMFORMULERING

Sportbestuurprogramme word lank reeds in die Verenigde State van Amerika, Brittanje en ander Europese lande aangebied (Kjeldsen, 1990; Parkhouse, 1991; Parks, 1991; Parkhouse, 2001). In Suid-Afrika is daar egter eers relatief onlangs begin om in hierdie opleidingsbehoeftes te voorsien, en uit die terugvoering van rolspelers in die sportbedryf wil dit voorkom asof die inhoud van sportbestuursprogramme nie goed tred hou met die behoeftes van die praktyk nie (Gouws, 1997; Randse Afrikaanse Universiteit, 2002).

Met die wêreldwye professionalisering van sport het daar ’n toenemende behoefte aan opgeleide sportbestuurders ontstaan wat meebring dat kurrikula en programme relevant en wetenskaplik verantwoordbaar moet wees. Verskeie probleemareas binne sportbestuuropleiding kan egter geïdentifiseer word.

Die eerste probleem is dat die uitkomste van programme nie noodwendig die praktykbehoeftes van die bedryf in aanmerking neem nie. Volgens Parkhouse (1991) het Sportbestuur in die verlede ’n sterk liggaamlike opvoedingsoriëntasie geopenbaar. Dit wil ook voorkom of daar weinig koördinering tussen rolspelers bestaan en dat die kurrikula moontlik nie suiwer genoeg op Suid-Afrikaanse behoeftes gerig is nie (Gouws, 1997; Hollander, 2000).

’n Tweede problem is die uiteenlopende inhoud van die verskillende opleidingsprogramme. Kjeldsen (1990) beweer dat ’n sportbestuurder nie enersyds kan spesialiseer en dan andersyds verantwoordelik kan wees vir ’n spektrum van take binne ’n sportorganisasie nie. Dit vloei dus logies hieruit dat die inhoud van opleidingsprogramme goeie aansluiting behoort te vind by reële praktykbehoeftes (Desensi *et al*., 1990).

’n Derde kurrikuleringsvraagstuk setel daarin dat opleidingsprogramme op voorgraadse vlak van verskillende tydsduur en kennisdiepte aangebied word. In Suid-Afrika het beide regerings- en nie-regeringsorganisasies programme beskikbaar in hierdie studieveld. Sommige van hierdie korter programme (tydsduur van ses maande tot een jaar) word voorgeskryf vir aspirantafrigters en -sportbestuurders, terwyl programme wat tot die verwerwing van grade en nasionale diplomas lei, nie noodwendig erken word nie. Volgens Fielding *et al*. (1991) is akkreditering van programme hier van kritieke belang.

In die finale instansie word die kurrikuleringsproblematiek in sportbestuur verder gekompliseer deur die gevaar dat die aanbod van studente wat sportbestuurprogramme deurloop die vraag in die arbeidsmark sal oorskry en dat die vraag na soortgelyke programme op die lange duur kan verminder. Hierdie aspek hou ernstige gevolge vir die sportbestuuropleidingsbedryf in.

Teen die agtergrond van die voorgaande problematiek is ’n empiriese opnamestudie onderneem onder praktiserende sportbestuurders in Suid-Afrika ten einde hul sieninge oor behoeftes aan opleiding vir die sportbestuursbedryf te peil.

METODES VAN DATAGENERERING

Welman en Kruger (1999) beveel aan dat van veelvuldige metodes gebruik gemaak word indien 'n relatief klein potensiële ondersoekgroep beskikbaar is. Derhalwe is 'n vraelysopname, fokusgroepe en persoonlike onderhoude in hierdie ondersoek benut.

Die vraelysondersoekgroep het bestaan uit individue wat op die top-, middel- en operasionele vlak in die sportbedryf werksaam is in regerings- en nie-regeringsdiensorganisasies van alle provinsies in Suid-Afrika. Die opname het tussen Junie en Augustus 2002 plaasgevind. Van die 195 vraelyste wat uitgestuur is, is 107 (55%) terugontvang en kon 102 vir analise benut word. Hierdie vraelyste is deur ongeveer 10% topbestuurders, 30% middelbestuurders en 60% operasionele bestuurders voltooi.

Die vraelysopname, grootliks gebaseer op 'n vroeëre vraelys van Hollander (2000), het bestaan uit 11 dimensies en 'n totaal van 213 potensiële leeruitkomste/vraagitems (vgl. Tabel 1 hieronder vir die 11 vraelysdimensies en voorbeeld-items). Respondente het items volgens 'n 5-punt Likert-skaal beoordeel wat elke leeruitkoms/item klassifiseer as totaal onbelangrik, onbelangrik, redelik belangrik, belangrik of totaal belangrik. Die doel met die vraelys was om binne elk van 11 geïdentifiseerde kennis- en vaardigheidsdimensies opleidingsprioriteite, soos geïdentifiseer deur praktiserende sportbestuurders op verskillende vlakke, daar te stel. Gegewens is met behulp van 'n chi-kwadraattoets vir vryheidstabelle (*chi-square test for contingency tables*) per item ontleed (Ferguson, 1987; Kennett & Sacks, 1998).

Gelyklopend met die vraelys-opname is twee fokusgroepe ook in die ondersoek betrek. Fokusgroep A het uit werknemers van die nie-regeringsdiensorganisasie, Sports Coaches Outreach (SCORE), bestaan. Hierdie organisasie is die enigste nie-regeringsorganisasie wat in die Wes-Kaap werksaam is. Fokusgroep B se respondente het 'n meer diverse agtergrond en kwalifikasierekord verteenwoordig. Almal was ten tye van die ondersoek in die sportbedryf werksaam.

'n Derde wyse van datagenerering het bestaan uit 15 individuele onderhoude wat tussen Julie en September 2002 aan die hand van 'n semi-gestruktureerde onderhoudskedule in respondente se werkomgewing plaasgevind. Die individue met wie onderhoude gevoer is, het manlike en top- en middelvlakbestuurders verteenwoordig aangesien geen vroulike respondente gedurende die ondersoekperiode beskikbaar was nie.

RESULTATE EN BESPREKING

Vanweë die omvangsbeperkinge van hierdie artikel kan die statistiese resultate van die chi-kwadraattoets wat op die data uitgevoer is, nie hier volledig weergegee word nie. Hierdie gegewens is egter uitvoerig gedokumenteer in De Villiers (2003). Tabel 1 toon voorbeelde van kennis- en vaardigheidselemente wat beduidend (op 'n peil van $p \leq 0.05$) verskillend tussen die drie bestuursvlakke wat in die ondersoek betrek is, beoordeel is. Vir topbestuurders was die eerste item in Tabel 1 ("Kennis van beheerstrukture") byvoorbeeld beduidend belangriker as die laaste item ("Bestuur van sportbeserings"), terwyl items soos "Bestuur bates" weer beduidend belangriker was vir bestuurders op die middelvlak.

TABEL 1. **VOORBEELDE VAN KENNIS EN VAARDIGHEIDSELEMENTE WAT BEDUIDEND VERSKILLEND (P≤0.05) OP DRIE BESTUURSVLAKKE BEOORDEEL IS**

Bevoegdheids-dimensies	Kennis- en vaardigheidselemente	Eerstelyn bestuur	Middel-bestuur	Top-bestuur	p-waarde
Beheer van sport	Kennis van beheerstrukture	64.3	85.3	100	0.038
Administrasie	Bestuur vergaderings	76.8	100	91.7	0.052
	Organiseer	62.5	82.4	100	0.017
	Hanteer etiese kwessies	44.6	58.8	83.3	0.016
	Benut bestuurstrukture	53.6	91.2	75.0	0.016
	Stel gedragskodes saam	53.6	67.6	75.0	0.007
Bemarking	Bestuur reklame	41.1	52.9	75.0	0.050
	Ontwikkel 'n bemarkingsplan	25.0	35.3	91.7	0.005
Kommunikasie en openbare skakeling	Skakel met media	41.1	70.6	91.7	0.040
	Bestuur 'n perskonferensie	17.9	47.1	58.3	0.006
Menslike hulpbronbestuur	Skryf posbeskrywings	23.2	47.1	75.0	0.015
	Bestuur personeelbeleid	50.0	61.8	66.7	0.029
Fasiliteitebestuur	Stel huurkontrakte vir fasiliteite op	23.2	41.2	66.7	0.028
Geleentheids- en projekbestuur	Bestuur toeskouerveiligheid	30.4	52.9	66.7	0.034
Finansiële bestuur	Voorspel ekonomiese ontwikkelinge	8.9	41.2	58.3	0.000
	Bestuur bates	33.9	79.4	58.3	0.018
	Stel 'n besigheidsplan op	14.3	44.1	75.0	0.001
Regsbestuur	Bestuur sportkontrakte	26.8	44.1	58.3	0.002
Menslike Beweging	Bestuur sportbeserings	44.6	44.1	16.7	0.008

1. Ruimte in hierdie artikel ontbreek om alle beduidend verskillende elemente in die ondersoek te tabuleer. Derhalwe word met voorbeelde van sodanige elemente volstaan. Vir 'n volledige uiteensetting, vgl. De Villiers (2003).
2. Syfers verteenwoordig die kumulatiewe persentasie van respondente wat die bepaalde element as "Volkome belangrik" of "Belangrik" op 'n 5-punt Likertskaal beoordeel het.
3. In alle gevalle is $p \leq 0.05$.
4. Item nie beduidend op $p \leq 0.05$ nie, maar ingesluit om die lys van 11 dimensies volledig te rapporteer.

Vanuit die *vraelysopname* het dit in geheel geblyk dat een van die grootste uitdagings in die sportbestuurbedryf die veelkantigheid en kompleksiteit daarvan is. Die opname het ook getoon dat beide klein en groot organisasies dieselfde funksies het wat vervul moet word, maar nie

oor dieselfde mensekragkapasiteit beskik nie.

Respondente in *fokusgroepe* het verskeie leerfokusse geïdentifiseer wat in sportbestuurkurrikula opgeneem sou kon word. Kommer is egter deur respondente uitgespreek oor die groot volume kennis en vaardighede wat bemeester moet word. As in aanmerking geneem word dat hierdie groep dit eens is oor die kritieke belangrikheid van praktiese opleiding, skep die mate waarin sportbestuurstudente dieptestudie in elke fokusarea kan onderneem, 'n probleem. Daar is volgens die fokusgroepe nie genoeg tyd om die teoretiese en praktiese opleiding in 'n driejaar-kwalifikasie in te pas nie.

Respondente in *individuele onderhoude* het die belangrikheid van sportbestuuropleiding eweneens erken. Een respondent was selfs skepties oor die generiese term "sportbestuurder". Die onderhoude het die behoefte aan deeglike praktiese opleiding, die identifisering van fokusareas van die opleidingsprogramme, die behoefte aan nagraadse studieprogramme, tydsduur van opleiding sowel as alternatiewe opleidingsmodelle duidelik uitgewys.

Inhoudskomponente van sportbestuursprogramme

Die navorsingsgegewens het aangetoon dat daar sekere wetensgebiede/kennis- en vaardigheidsdimensies is wat in die geheel nie deur sportbestuurders as belangrik geag word nie, maar dat daar bestuurskomponente binne hierdie dimensies is wat spesifiek in die sportbedryf benodig word. Die verskillende inhoudskomponente betreffende Sportbestuur word vervolgens bespreek.

Beleid en beheer

Alhoewel die beheer van sport deur uitvoerende organisasies op regeringsvlak sowel as op die vlak van sportfederasies nie in internasionale programme prominent voorkom nie, is kennis aangaande hierdie rol, asook aangaande die werking en beleid van hierdie rol in 'n Suid-Afrikaanse perspektief belangrik. Dit is as sodanig deur die meerderheid van respondente aangedui en sou dus gepas deel van 'n kurrikulum kon uitmaak. Die belangrikheid daarvan het ook toegeneem soos wat bestuursvlakke toeneem. Die beheerstrukture van sport sou dus op laervlak-kwalifikasievlakke inleidend hanteer kon word, maar indringend op hoër vlakke.

Administrasie

Die insluiting van administratiewe vaardighede in kurrikula blyk ook noodsaaklik te wees. Groter prominensie sou egter op laer kwalifikasievlakke daaraan gegee kon word as op hoër vlakke. Hoewel daar geen statisties beduidende verskille tussen die komponente in die administratiewe dimensie in die vraelysopname aangetoon is nie, is enkele komponente tog as belangriker as ander deur die verskillende bestuursvlakke uitgewys. *Effektiewe tydsbestuur, effektiewe kommunikasie en die bestuur van inligting* val in hierdie kategorie en sou veral in hoërvlak-kurrikula ingesluit kon word.

Algemene bestuur

Alhoewel *algemene bestuursvaardighede* die uitvoering van die vier fundamentele bestuursfunksies, naamlik beplanning, organisering, leierskap en beheer insluit, is daar ander

komponente binne hierdie funksies wat vir die sportbestuurder van wisselende belang is. Eerstelynbestuurders dui duidelik aan dat daar van hierdie komponente is wat nie deur hulle as belangrik geag word nie (bv. *die hantering van etiese kwessies, delegering en die saamstel van*

gedragskodes) en derhalwe dus nie op aanvangsvlak hanteer hoef te word nie. Dieselfde komponente word egter wel deur hoërvlakbestuurders as belangrik geag en sou dus in hoër studievlak-kurrikula ingesluit kon word.

Bemarkingsbestuur
Die empiriese gegewens het uitgewys dat die bemarkingsfunksie moontlik deur 'n spesialis in sportorganisasies bestuur sou kon word. Daar is egter komponente wat deur al drie bestuursvlakke as belangrik aangedui is en in generiese sportbestuurkurrikula ingesluit sou kon word. Hierdie komponente is "*bestuur promosies"* en *"bied kwaliteit diens*". Dit het dus waarskynlik op alle kurrikula op alle vlakke betrekking.

Skakelbestuur
Die onderliggende komponent van openbare skakelbestuursvaardighede is dié van kommunikasie. Hierdie aspek sou dus deurgaans in alle kurrikula prominent hanteer kon word. Alle komponente binne hierdie funksie word deur topbestuurders as belangrik geag.

Hulpbronbestuur
Dit blyk duidelik uit die ondersoek dat menslike hulpbronbestuursvaardighede oor die algemeen nie deur eerstelynbestuurders as belangrik geag word nie. Gegewens toon enersyds dat hierdie funksie deur spesialiste bestuur moet word, maar andersyds dat veral middelvlakbestuurders en topvlakbestuurders wel oor sekere vaardighede ten opsigte van hierdie funksie moet beskik.

Fasiliteitebestuur
Fasiliteitsbestuursvaardighede is deurgaans relatief laag ten opsigte van belangrikheid beoordeel. Die enigste komponente wat deur al drie bestuursvlakke as meer belangrik geag word, naamlik "*skeduleer aktiwiteite"* en "*kommunikeer met gebruikers"* sou moontlik as deel van ander funksies hanteer kon word (skedulering by administratiewe vaardighede en kommunikasie is alreeds as belangrik vir alle bestuursvlakke uitgewys). Hierdie funksie is dus ook deel van spesialisfunksies en sou as keuserigting binne bestaande kwalifikasies of as kortkursusse hanteer kon word.

Geleenthede- en projekbestuur
Die funksie van geleentheids- en projekbestuursvaardighede word oor die algemeen nie as belangrik deur respondente geag nie. Hierdie vaardighede sou ook met vaardighede in ander studievelde geïntegreer kon word.

Finansiële bestuur
Finansiële bestuursvaardighede blyk oor die algemeen 'n spesialisfunksie te wees. Die belangrikheid vir generiese sportbestuurkurrikula sentreer rondom die opstel van begrotings en die verdere bestuur daarvan. Die boekhoudingsfunksie spesifiek word nie deur generiese sportbestuurders verrig nie en sou dus waarskynlik nie in kurrikula ingesluit word nie.

Bestuur van regsaangeleenthede
Regsbestuursvaardighede blyk ook 'n waarskynlike spesialisfunksie te wees. Topbestuurders dui egter aan dat 'n inleidende kennis van regsprobleme in sportbestuur noodsaaklik is, asook die bestuur van sportkontrakte, formulering van regsbeleid en die onderhandeling van sportkontrakte.

Menslike Bewegingskunde
Een van die debatte in sportbestuuropleiding handel oor die plek van Menslike Bewegingskunde in sportbestuurskurrikula. Hierdie studie toon dat hierdie aspek oor die algemeen nie as belangrik beskou word nie, behalwe moontlik op aanvangstudievlak.

Die voorgaande bevindinge vanuit die ondersoek (volledig beskryf en statisties ontleed in De Villiers, 2003) wys dus op bepaalde moontlikhede waarvolgens 'n meer gedetailleerde kurrikulumraamwerk teen die agtergrond van die NKR vlakbeskrywers (DOE, 2002) voorgestel kan word.

VLAK 5: VOORGRAADSE SERTIFIKAAT IN SPORTBESTUUR

Kwalifikasies op hierdie vlak in Sportbestuur moet lei tot wat as algemene bestuurs- en administratiewe bevoegdhede geklassifiseer kan word. Die hoofkomponente van leerprogramme wat lei tot ’n vlak 5-kwalifikasie sal dus uit inleidende aspekte van administrasie, bestuur, bemarking, kommunikasie, openbare skakelbestuur, menslike hulpbronbestuur en finansiële bestuur kon bestaan. Die uitkomste wat nagestreef word, is dat studente oor ’n algemene kennis van bestuurstake soos aangetref in enige bedryf, sal beskik. Dit sluit konsepte, beginsels en teorieë in wat op hierdie vlak noodsaaklik is. Een van die kernstudie-areas behoort dié van kommunikasie te wees. Die bevindinge vanuit die studie het aangetoon dat hierdie onderliggende komponent alle ander areas ondersteun. Studente kan ook in hierdie vroeë studiefase ’n keuse van twee uit drie moontlike spesialisrigtings maak. Die bedoeling is duidelik dat studente een van hierdie studievelde op ander vlakke verder sal neem. Vanuit hierdie basiese kennis en vaardighede kan ’n student na vlak 6 beweeg waar toepassing van vaardighede belangriker blyk te wees. Uit die bevindinge van hierdie studie word dit ook aanbeveel dat studente ten minste twee weke in ’n sportorganisasie deurbring om slegs waarneming te doen. Hierdie observasietydperk kan geassesseer word by wyse van ’n geverifieerde verslag wat die ondervinding in ooreenstemming bring met teoretiese konsepte wat in die eerste studiejaar bemeester is.

Die basiese inhoude/uitkomste van elke studieveld vir 'n vlak 5-kwalifikasie in Sportbestuur word kernagtig in Tabel 2 weergegee.

Aangesien Tabel 2 slegs as raamwerk dien vir moontlike uitkomste sou dit uiteraard die prerogatief van instellings wees om uitkomste by hierdie raamwerk te voeg. Ná suksesvolle voltooiing van hierdie studievlak behoort studente oor basiese kennis en vaardighede te beskik wat hul nie net voorberei op basiese take binne ’n organisasie nie, maar hulle ook sal toelaat tot die Voorgraadse Diploma in Sportbestuur.

TABEL 2. **BASIESE UITKOMSTE EN INHOUDE VIR VLAK 5-KWALIFIKASIES IN SPORTBESTUUR (BYVOORBEELD ’N VOORGRAADSE SERTIFIKAAT)**

Fundamentele uitkomste en inhoude:
Die student behoort in elk van die volgende velde die onderstaande uitkomste te demonstreer:
Kommunikasie: Kommunikeer effektief deur van skriftelike metodes gebruik te maak; kommunikeer effektief deur van verbale metodes gebruik te maak.
Rekenaargeletterdheid: Benut 'n woord-verwerkingspakket effektief; benut 'n databasispakket effektief; benut ’n sigbladpakket effektief.

Praktiese opleiding: Twee weke praktykbesoek waartydens die student prosedures, tegnieke en stelsels in die praktyk observeer.

Kernuitkomste en inhoude:

Algemene bestuur: Kennis en toepassing van organisering as bestuursfunksie; kennis en toepassing van beplanning as bestuursfunksie; kennis en toepassing van leierskap as bestuursfunksie; kennis en toepassing van kontrole as bestuursfunksie.

Administrasie: Kennis en toepassing van stelsels en prosesse tydens die uitvoering van administratiewe take; kennis en toepassing van kantoor-bestuurbeginsels; kennis en toepassing van vergadering-prosedures.

Openbare skakelbestuur: Kennis en toepassing van verhoudingsbestuur; organiseer uitstallings.

Bemarking: Begrip van "prys" as komponent in die bemarkingsmengsel; begrip van "produk" as komponent in die bemarkingsmengsel; begrip van "mark" as komponent in die bemarkingsmengsel; begrip en toepassing van die beginsels van verkoopsbestuur.

Menslike hulpbronbestuur: Inleidende kennis van die bestuur van menslike hulpbronne binne 'n spesifieke organisasie-kultuur; kennis en toepassing van die werwingsaksie; kennis en toepassing van aanstellingsprosedures; kennis en begrip van toesighoudings-beginsels; inleidende kennis van beginsels van arbeidsverhoudinge; inleidende kennis van personeeladministrasie-prosedures en –stelsels.

Finansiële bestuur: Opstel, bestuur en funksionering binne begrotings; kennis en toepassing van die aankoopfunksie; kennis en toepassing van die verkopefunksie.

Keuse-uitkomste en inhoude:

Sport en rekreasie: Kennis van en begrip vir die rol van beheerstrukture en ander rolspelers in verskillende sportstrukture; kennis en toepassing van noodhulp; kennis van elementêre Anatomie, Fisiologie en Biomeganika; inleidende kennis en toepassing van die beheerstrukture, reëls, tegnieke en afrigting van ten minste een sportspesialisasie; inleidende kennis en deelname aan aspekte van Rekreasiebestuur.

Fiksheidsbestuur: Toegepaste kennis van Anatomie, Fisiologie en Biomeganika soos van toepassing op fiksheid; kennis en begrip van fiksheidsbeginsels; ontwerp en implementeer basiese fiksheidsprogramme.

Fasiliteitsbestuur: Kennis en toepassing van die skedulering van aktiwiteite; kennis en toepassing van apparaatbestuur; kennis en toepassing van toegangsbeheer; kennis en toepassing van die organisering van spyseniering by fasiliteite; kennis en toepassing van sekuriteitsbestuur by fasiliteite.

VLAK 6: VOORGRAADSE DIPLOMA IN SPORTBESTUUR

Hierdie kwalifikasievlak sluit inhoude in wat ’n verdere uitbreiding van die basiese kennis en vaardighede behels, maar ook sterker fokus op die toepassing van hierdie kennis en vaardighede. Basiese administratiewe vaardighede sou in die vorige kwalifikasievlak ingesluit kon word en word derhalwe hier weggelaat, terwyl studies in regsaspekte ingesluit word. Kommunikasie, en spesifiek die aanwending van inligtingstegnologie in hierdie verband, behoort ook prominent deel van die kurrikulum uit te maak. Studente behoort ’n keuse van twee uit die drie studievelde te kan uitoefen. Die basiese inhoude van elke studieveld vir 'n vlak 6-kwalifikasie in Sportbestuur word kernagtig in Tabel 3 aangedui.

TABEL 3. **BASIESE UITKOMSTE EN INHOUDE VIR VLAK 6-KWALIFIKASIES IN SPORTBESTUUR (BYVOORBEELD ’N VOORGRAADSE DIPLOMA)**

Fundamentele uitkomste en inhoude:
Die student behoort in elk van die volgende velde die onderstaande uitkomste te demonstreer:
Kommunikasie: Aanwending van elektroniese kommunikasievorme soos e-pos en internet; kennis en toepassing van groepkommunikasie-beginsels; effektiewe aanwending van verskillende vorme van media vir voorleggings.
Rekenaargeletterdheid: Effektiewe internetgebruik; kennis en benutting van e-handel; kennis en produktiewe aanwending van inligtingstelsels.
Praktiese opleiding: Vier weke skaduwerk met die doel om te observeer en beperkte blootstelling aan bestuurstake onder toesig.

Kernuitkomste en –inhoude:
Algemene bestuur: Kennis en toepassing van kwaliteitsbestuur; kennis van etiese kwessies in Sportbestuur; kennis en toepassing van delegering as bestuurstaak; kennis en benutting van verskillende motiveringsteorieë; kennis en toepassing van besluitneming as bestuurstaak; kennis en toepassing van 'n verskeidenheid probleemoplossings-vaardighede; kennis en toepassing van konflikhanterings-beginsels
Openbare skakelbestuur: Kennis en toepassing van mediastudies; organiseer van mediakonferensies.
Bemarking: Kennis en toepassing van advertering as bemarkingsmeganisme; bestuur van publisiteit en promosies; kennis en toepassing van die bemarkingsmengsel; benutting van die bemarkingsomgewing; ontwikkeling van 'n bemarkingsplan; kennis en benutting van verbruikersgedrag; voorbereiding van 'n borgskapvoorstel.
Menslikehulpbronbestuur: Kennis en benutting van organisasiestrukture; doen posanalises; doen posbeskrywings; kennis en benutting van grieweprosedures; bestuur van vrywilligers.
Finansiële bestuur: Kennis en toepassing van verskillende metodes van fondsinsameling; kennis en toepassing van batebestuur; opstel en interpretasie van balansstate; kennis en benutting van verskillende affiliasiestelsels; inleidende kennis van finansiële beleidsformulering.
Regstudies: Inleidende kennis van kontraktereg; inleidende kennis van arbeidswetgewing; opstel en implementering van 'n grondwet.

Keuse-uitkomste en -inhoude:
Sport en rekreasie: Hantering van etiese kwessies in sportdeelname; toepassing van sport-sosiologiese beginsels; kennis en beperkte toepassing van Sportsielkunde-aspekte; kennis

en toepassing van die beheerstrukture, reëls, tegnieke en afrigting van ten minste een sportspesialisasie; kennis van en deelname aan aspekte van Rekreasiebestuur.
Fiksheidsbestuur: Kennis en toepassing van beginsels van fiksheidsleer; kennis en toepassing van groepfiksheid; kennis en aanwending van gimnasiumstelsels.
Fasiliteitsbestuur: Kennis en toepassing van verhuringstelsels vir fasiliteite; bestuur van onderhoudskedules; bestuur van noodplanne.

Uit die aard van die inhoude in Tabel 3 is dit duidelik dat hierdie studie meer gevorderd is en nie net hoërorde-kognitiewe vaardighede vereis nie, maar dat dit ook studente lei na ’n geheelbeeld van wat in die bedryf verwag word. Hierdie studente kan ná afloop van vlak 6-studies waarskynlik reeds as laervlak-assistentbestuurders in diens geneem word. Organisasies wat in basiese sportontwikkeling spesialiseer sou studente op hierdie vlak ook effektief kon

benut, terwyl fiksheidsbestuurstudente op hierdie vlak ook as gimnasiuminstrukteurs kan optree en die sport- en rekreasiestudente as spelleiers.

VLAK 7: B.-GRAAD IN SPORTBESTUUR

Op hierdie vlak behoort die student 'n goed afgeronde en sistematiese kennisbasis in ten minste een keuseveld te demonstreer wat deur gedetailleerde kennis van die kern en fundamentele velde ondersteun word. Dit word ook vereis dat studente abstrakte probleme moet kan hanteer deur van geskikte oplossings gebruik te maak. Die gebruik van inligting en die kommunikasie daarvan blyk ook prominent in hierdie kurrikulum te wees. Moontlike basiese inhoude vir vlak 7-kwalifikasies in Sportbestuur word kernagtig in Tabel 4 gegee.

TABEL 4. **BASIESE UITKOMSTE EN INHOUDE VIR VLAK 7-KWALIFIKASIES IN SPORTBESTUUR (BYVOORBEELD 'N GRAADKWALIFIKASIE)**

Fundamentele uitkomste en inhoude:
Die student behoort in elk van die volgende velde die onderstaande uitkomste te demonstreer: *Kommunikasie:* Kennis en toepassing van onderhandelingsvaardighede. *Navorsing:* Kennis en toepassing van navorsingsmetodologie. *Praktiese opleiding:* Ses maande indiensopleiding waartydens die student aan alle bestuursfunksies en take onder beperkte toesig (tutor) in die sportorganisasie blootgestel behoort te word. **Kernuitkomste en –inhoude:** *Algemene bestuur:* Doen van behoefte-bepalings; kennis en toepassing van prosesbestuur; kennis en toepassing van multitaakbestuur; kennis en toepassing van veranderingsbestuur; kennis en toepassing van projekbestuur; kennis en toepassing van strategiese bestuur. *Bemarking:* Kennis en benutting van bemarkingsinligtingstelsels; onderneem bemarkingsnavorsing; implementeer 'n bemarkingsplan; onderneem die lisensiëring van produkte. *Menslikehulpbronbestuur:* Kennis en toepassing van personeelbeleid; kennis en toepassing van kollektiewe bedinging; kennis en benutting van personeelopleiding; kennis van werknemersvergoeding en –stelsels. *Finansiële bestuur:* Kennis en bestuur van finansiële stelsels; benutting van verslaglewering; kennis en bestuur van verskillende tipes versekering; hantering van

belastingkwessies; kennis en benutting van finansiële besigheidsplanne; bestuur van beleggings. *Regstudies:* Kennis van risikobestuur; kennis van besigheidsreg; kennis van deliktereg. **Keuse-uitkomste en –inhoude:** *Sport en rekreasie:* Bestuur van toernooie; bestuur van ligas; kennis en toepassing van sportontwikkeling; gevorderde kennis van en toepassing van die beheerstrukture, reëls, tegnieke en afrigting van ten minste een sportspesialisasie; gevorderde kennis en deelname aan aspekte van rekreasiebestuur. *Fiksheidsbestuur:* Kennis en toepassing van fiksheid vir spesiale behoeftes; kennis en toepassing van fiksheidfasiliteitsontwerp. *Fasiliteitsbestuur:* Kennis en toepassing van fasiliteitsontwerp; kennis en toepassing van toeskouerveiligheid.

Fasiliteitsontwerp word by beide die keuses van Fiksheidsbestuur en Fasiliteitsbestuur ingesluit. Alhoewel die benaming dieselfde is, moet dit uiteraard op die spesifieke soort fasiliteit toegepas word. Die ontwerp van die fiksheidsfasiliteit, spesifiek die interne uitleg daarvan, verskil van dit wat 'n fasiliteitsbestuurder (soos byvoorbeeld 'n stadionbestuurder) behoort te weet.

Hierdie raamwerk sluit nie ander inhoude/uitkomste uit nie. Dit word voorsien dat instellings veral ten opsigte van spesifieke streeksbehoeftes inhoude/uitkomste hierby sou kon voeg.

Ná suksesvolle voltooiing van hierdie studievlak behoort studente waarde tot enige organisasie te kan toevoeg. Studente is nou meer as gereed om die arbeidsmark te betree, terwyl geleenthede ook behoort te bestaan vir diegene wat verder wil studeer.

VLAK 8: NAGRAADSE STUDIES

Die eerste subvlak (NG1) sluit honneursgrade en nagraadse diplomas in. Die gevorderde beroepsgefokusde Baccalaureusgraad (B.Tech.) wat gewoonlik aan technikons aangebied word, is ook op hierdie subvlak. Die subvlak-beskrywer vereis dat daar omvattende kennis van 'n spesialisveld en dieptekennis van sommige spesialisareas moet wees. Die idee is dus dat studente hier moet spesialiseer, maar tog ook in ondersteunende areas verdere kennis en vaardighede moet opdoen. Die basiese inhoude en vaardighede vir hierdie subvlak word kernagtig in Tabel 5 voorgestel.

Aangesien studente wie se aanvanklike studies op spesialisareas gefokus was nie sportspesifieke onderrig deurloop het nie, is dit belangrik dat programme op hierdie vlak wel daarvoor voorsiening maak. Soos wat spesifiek tydens onderhoude uitgewys is, moet studente blootgestel word aan inhoude wat sosiologiese en kulturele aspekte van sport insluit. Dit sou ook die geskiedenis en ontwikkelingspatrone van sport moet insluit.

TABEL 5. **BASIESE UITKOMSTE EN INHOUDE VIR VLAK 8 (SUBVLAK NG1)-KWALIFIKASIES (BYVOORBEELD 'N HONNEURSGRAAD)**

Fundamentele uitkomste en inhoude:
Kommunikasie: Die student moet vertroud wees met alle vorme van effektiewe groepskommunikasie, insluitend ’n hoë vlak van debatvoering.
Navorsing: Gevorderde navorsingsmetodologie en die toepassing daarvan.

Kernuitkomste en –inhoude:
Sportbestuur: Studente op hierdie subvlak het reeds die kennis en vaardighede wat nodig is om operasioneel in die organisasie aangewend te word. Op hierdie vlak word gekonsentreer op aspekte van sport wat verrykend sal wees vir studente wat die beroepsgefokusde roete geneem het, maar ook om die student wat die algemene roete geneem het van die nodige bykomende kennis en vaardighede te voorsien. Die kern van die program is dus gerig op die strategiese bestuur van die studievelde soos in die volgende kolom uiteengesit is.

Keuse-uitkomste en –inhoude:
Studente kan een spesialisveld kies waarin 'n diepgaande studie onderneem word en waarin die kernvelde van kommunikasie en navorsing toegepas word:
Bestuur; Bemarking; Finansies; Openbare skakelbestuur; Menslike hulpbronbestuur; Sportontwikkeling; Fiksheidsbestuur; Rekreasiebestuur; Fasiliteitsbestuur en Byeenkoms-bestuur.

Op die ander subvlakke van vlak 8 word die meestersdiplomas, -grade en doktorale studies aangebied. Daar word volstaan deur aan te beveel dat indien gestruktureerde meestersgrade in Sportbestuur aangebied word, die inhoud en uitkomste dieselfde sal wees as wat in ’n tipiese MBA-graad aangetref word. Een van die spesialisareas wat in sportorganisasies toegepas word, kan in die navorsingsmodule toegepas word. Hierdie aanbeveling spruit uit die bevinding dat middelbestuurders en topbestuurders gewoonlik spesialiste is of op ’n meer strategiese bestuurswyse te werk gaan.

SLOT

Hierdie artikel het ten doel gehad om ’n kurrikulumraamwerk voor te stel wat volhoubare opleiding in Sportbestuur kan bevorder. Hiervoor is onder meer na internasionale en nasionale tendense ten opsigte van sportbestuurkurrikula verwys. Nasionale strukture wat opleiding rig en reguleer, en vereistes in hierdie verband, is veral vermeld. Empiriese gegewens is ingewin en ontleed as 'n basis om, in samehang met die teoretiese bevindinge, aanbevelings ten opsigte van 'n moontlike kurrikulumraamwerk daar te stel. Met hierdie raamwerk sou verdere verfyning van programme aan Suid-Afrikaanse hoëronderwysinstellings kon plaasvind ten einde die sportbestuurbedryf van opgeleide menslike hulpbronne te voorsien om uitdagings van hierdie komplekse bedryf op 'n volhoubare basis die hoof te bied.

SUMMARY

A curriculum framework for sustainable Sport Management training in South Africa

The world-wide professionalisation of sport has created an increasing need for trained sport managers. This requires that curricula and training programmes be relevant and scientifically valid. Various problem areas can, however, be identified within the field of sport management

training. These problem areas include a possible incapacity to take into account the practical needs that exist in the industry, divergent structures and content of programmes that are offered by training institutions, the role of sport science training in sport management, and the possibility of an oversupply of sport management programmes that could jeopardize the sustainability of these programmes.

This article describes the methods and results of research done amongst practising sport managers at the top, middle and operational level in South Africa with a view to identifying knowledge and skills components necessary to compile curriculation guidelines in sport management at levels 5 to 8 of the National Qualifications Framework. The study comprised a questionnaire survey, focus interviews as well as individual interviews involving 132 respondents representative of the three above-mentioned management levels, between June and September 2002. In the questionnaire survey, which covered the greater part of the research, respondents indicated knowledge and skills priorities by judging 213 items (learning outcomes) within 11 dimensions on a 5-point Likert scale. The response options per item varied between "altogether important" to "altogether unimportant".

The results of the study indicated, inter alia, that the sport management industry in South Africa is exceptionally varied, politicised and complex. Both small and large sports organisations exhibit similar and different needs with regard to sport management and the accompanying sport management training. Various potential learning focuses with varying scope were identified in the survey. They form the basis of the guidelines for sport management curricula that have been recommended as a result of the survey. The personal interviews particularly highlighted the need that exists for effective training in practice and for postgraduate study programmes. The need to determine time frames for training problems in sport management was also emphasised.

Possible outcomes and content components that were particularly emphasised by respondents, or that were pointed out in the questionnaire, as indicating statistically significant differences between management levels, include the following: handling policy and control; giving greater prominence to administrative skills at lower levels of management; the divergent prominence of general management skills; marketing management as a predominantly specialist function; the importance of liaison management components at all levels of management; human resources management as being important at middle and top management level; facilities and events management as having a relatively low priority; financial management and legal issues as specialist functions and human movement science/sport science as having a relatively low priority in sport management training.

The article concludes by proposing fundamental, core and elective contents and learning outcomes for different sport management qualifications at levels 5 to 8 of the National Qualifications Framework. Proposals for each qualification level are presented in the article in

tabular form. These proposals serve as a guideline for curriculation as seen from the perspective of practising sport managers. It would be possible for training institutions to adapt, supplement or curtail these guidelines, depending on the focus placed on practical, academic or other aspects of learning programmes.

Finally, possibilities for further research in sport management as a developing area of knowledge are indicated in the article.

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RACIAL BACKGROUND AND POSSIBLE RELATIONSHIPS BETWEEN PHYSICAL ACTIVITY AND PHYSICAL FITNESS OF GIRLS: THE THUSA BANA STUDY

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ABSTRACT

The aim of this research was to investigate possible relationships between physical activity and physical fitness of girls between the ages of 13 and 15 years and the role of different racial backgrounds in this relationship. A cross-sectional research design was used to obtain information from 290 girls between the ages of 13 and 15 years, randomly selected from 16 schools in different districts in the Northwest Province of South Africa. They were classified as low, moderate or high active by means of the PDPAR (Previous day physical activity recall, Trost et al., 1999). Physical fitness was tested by means of a physical fitness battery of tests (Brewer, 1988; Docherty, 1996; Wood, 1997) consisting of abdominal strength, handgrip strength, bent-arm-hang, flexibility and VO_2 max tests. SAS was used to analyse activity patterns, while the Statistica for Windows programme was used to determine descriptive statistics. Variance of analysis (ANOVA) and Tukey post hoc tests were used to analyse the data for differences. The results indicate that the girls as a group were classified as low active, although different activity levels and physical activity patterns were found among the different racial groups. Relationships were found to exist between low PA levels of white and black groups in arm-strength endurance and flexibility, while abdominal strength of low active Indian girls were significantly higher compared to black girls.

Key words: Physical activity; Physical fitness; Race; Girls; Health; Physical activity patterns.

INTRODUCTION

Heath *et al.* (1994), Schmidt *et al*. (1998) and Van Mil *et al*. (1999) indicate a decline in physical activity levels (PA) among girls from different populations groups with increasing age. In this regard Meyers (as reported by Schmidt *et al*. 1998) reports lower physical activity levels (PA) for black girls compared to white and coloured girls. The National Health Interview Survey, Behavioural Risk Factor Surveillance and the Surgeon General's Report as reported by Kriska (2000) confirm the above-mentioned findings, and claim the reason for this lower PA levels of black children to be poor socio-economic conditions. Overall, literature indicates low intensity PA levels among 13-15 year old girls in general, while different activity preferences for girls belonging to different racial groups are also indicated (Schmidt *et al*., 1998; Van Deventer, 1999).

The general viewpoint of Boreham *et al*. (1997) and Pate *et al*. (1997) is that physical fitness (PF) and physical activity (PA) provide a preventative effect on the risk of coronary heart disease. PA and PF factors like cardiovascular fitness, strength, flexibility and body composition play an important role in maintaining physical health and, therefore, adequate PF and PA are needed for the prevention of these risk factors according to Riddoch and Boreham (1995) and Trost *et al*. (1999).

With regards to differences between population groups in PF, research indicates lower cardiovascular fitness for black compared to white girls (Corlett, 1984; Fares, 1984; Pivarnik *et al*. 1995). A positive relationship between PA and strength is reported by Bouchard *et al.*

(1997) and Treuth *et al*. (1998). Also, research findings indicate significant differences between different population groups with regards to different strength components (grip-, abdominal-, arm- and shoulder strength) (Hemraj, 1975; Corlett, 1984; Ishiko, 1984; Corbin & Pangrazi, 1992; Anderson, 1994; Siniarska *et al*., 1998).

Research regarding PA and body composition shows a weak to moderate relationship between them (Rowland, 1996), while very little research has been published on the relationship between flexibility and PA. It seems that the flexibility of children is to a greater extent determined by genetic characteristics and to a lesser degree by PA (Corbin & Pangrazi, 1992, Marsh & Johnson, 1994; Raudsepp & Jurimae, 1996).

Van Deventer (1999) studied the activity preferences of 13-17 year old South African girls of different population groups, living in the Cape Province. No other relevant South Africa studies have been published, where PA and PF were studied or analysed among different population groups. Because of the relevance of such relationships for health purposes, and the lack of knowledge regarding such relationships among adolescent girls in South Africa, the objective of this study was to determine whether such relationships exist between PF and PA levels of 13-15 year-old girls of different population groups in the Northwest Province. The study is based on the hypothesis that PF has a significant relationship with PA, and that population groups will differ with regard to their physical activity levels, physical activity preferences and PF levels.

METHODS

Research design

The research described in this article form part of a collaborative research initiative from the Faculty of Health Sciences, North-West University, concerned with children's health, wellness and physical fitness in the North-West Province (The Thusa Bana study). A cross-sectional research design was used. The research sample was constituted in co-operation with the statistical consultation service of the University. Two hundred and ninety girls between the ages of 13 and 15 years, selected from 16 secondary schools were included in the sample. Information was collected from the research population who represented a stratified random sample equally representing age and district and proportionately representing different racial groups living in the NW Province. Data was gathered over a period of 15 months (April 2000 to June 2001). A list of schools was obtained from the Department of Education of the North-West Province of which subjects from 16 schools were selected at random from each of five regions for the purpose of this study. Ethical approval was received from the University and

informed consent obtained from the parents of each child before they were allowed to participate in the study.

Subjects

The number of girls in each racial group was as follows: white girls (n=42), black (n=215), coloured (n=16) and Indian girls (n=17). In this study 35.7% of the subjects were classified, using per capita income as criterion, with low socio-economic status, while 67.3% were classified in the low to moderate socio-economic status groups. Only 26.7% subjects lived in high socio-economic conditions.

Test Materials

Demographic information, such as age, gender and race, was also collected by means of a questionnaire. The Previous Day Physical Activity Recall (PDPAR) questionnaire compiled by Trost *et al*. (1999) was used to record the daily activities of the children, in order to classify the child's physical activity level as low, medium or high. Weston *et al*. (1997) tested the PDPAR as reliable and valid (the test-retest reliability coefficient was 0.99, ($p<0.01$). It has also been used with success by various researchers (Pate *et al*., 1997; Prista *et al*., 1997).

With the aid of the PDPAR, information was collected about physical activity from 13:00 hours to 23:00 hours on the previous day in the week, as well as on one day over the previous weekend. Because of a low, but significant correlation between the week and weekend activity levels, the previous activity level of the weekday was used for classification purpose in this study. Respondents were individually questioned and expected to recall the previous day and to describe the activities that they had performed during each of the 30 minute-periods indicated on the PDPAR. The type of activity as well as the intensity level (MET value) were then indicated on the questionnaire. Intensity level was classified as high (3), medium (2) or low (1) according to the fatigue factor. Sketches of low (<3 METS), medium (>3 METS) and high (>6 METS) intensity activity were used to explain the classification to the subjects.

Additions regarding the inclusion and coding of activities were made on advice of Trost (2000), because of cultural differences in different countries. Additions were made from the "Compendium of physical activities" (Ainsworth *et al.*, 1993) and a questionnaire for Maputo youth (Prista & Marques, 2000). The additional activities were added under the headings of attending-to-self, transport, housework, outdoor activities, recreational activities, physical activities, sport and games. Twenty traditional games known to Tswana children of which the MET value of each game was measured by means of heart monitors during the game (Prista *et al*., 1997), were added. The metabolic equivalent (MET-value) represents an average person's resting metabolism or oxygen uptake (McArdle *et al*., 1994). MET value is used to express the intensity of the activity in a metabolically value (Trost *et al*., 1999). One-MET represents a resting metabolically value when sitting still (1 kcal/kg/hour, or 3.5 ml O_2/kg/min) (Ainsworth *et al*., 2000).

The MET values of the physical activities were taken directly from the "Compendium of physical activities" and the list of energy consumption of the PDPAR (Ainsworth *et al*., 1993; Weston *et al*., 1997). A relative energy value of 1 MET (1 kcal/kg/hour) was assigned per 30 minute-window. The values are used to estimate the total daily energy consumption, starting

with the energy consumption in a specific period, with a specific activity. The number of 30 minute-periods with a MET value equal to 6 METS or more is added. Respondents' activity levels are classified as highly active (3) if one or more 30 minute-periods with 6 METS are coded; as medium active (2) if two or more 30 minute-periods with 3 METS are coded (Pate *et al*. 1997). Respondents are classified as low active (1) if they do not comply with the high or medium activity standards (Pate *et al.*, 1997).

Physical fitness test battery

Physical fitness was estimated from the scores of different physical fitness tests. This included measuring strength, flexibility, aerobic endurance and body composition. All the tests was integrated in a single test battery to determine the child's fitness level. It consisted

of the following parameters:

- Seven-phase sit-up test measuring abdominal muscle strength, scoring the subject from level 0 to level 7 (Wood, 1997).
- Bent arm hang for measuring arm-strength endurance. A horizontal overhead bar is used and the amount of time is recorded (Wood, 1997).
- Left and right handgrip strength was measured by a Lafayette handgrip dynamometer (Wood, 1997).
- The modified sit-and-reach test measures the flexibility of lower back and hamstrings by means of a box with a measuring stick (Australian Sports Commission, 1995).
- The bleep test is an indirect test, which measures the VO_2 maximum by recording the level at which the respondent drops out of a 20 m, paced multi-stage shuttle-run (Brewer *et al*., 1988).
- Stature, body mass, fat percentage and BMI index (L/M^2) were established. The equation for determining fat percentage of Boileau *et al*. (1985) for girls in the age group 13-15 years was used.

Statistical analysis

The Statistica for Windows computer package (Statsoft, 1995) and SAS (1999) were used to analyse the data. Analysis of means (M), standard deviations (SD), minimum and maximum values were used for descriptive purposes. Variance of analysis (ANOVA), and Tukey post hoc analysis were used to statistically interpret the difference between groups (Thomas & Nelson, 1996). A p-value of <0.05 (95% significance level) was accepted as a statistical difference between groups. The activities the girls participated in, were grouped according to means of occurrence in half hours (SAS, 1999).

RESULTS AND DISCUSSION

From the number of girls classified as low, medium or high active in each race group, a pattern was established (Table 1) which indicated that less white girls (61%), were low active than black (72.9%), coloured (87.5%) and Indian girls (94%). No Indian girls were active enough to be grouped in the high intensity activity level while only one coloured girl was classified into the high activity group. According to other research, white children (67%) were also more active than black children (53%) (Trost *et al*., 1999). Gordon-Larsen *et al*. (1999) did longitudinal research on the relationship between PA and different racial groups

and indicated that black and Indian adolescent girls had the lowest PA levels compared to other racial groups.

TABLE 1. **PA LEVEL (1-3) OF EACH RACIAL GROUP AND PERCENTAGE OF GIRLS FROM DIFFERENT RACIAL GROUPS CLASSIFIED IN EACH PA LEVEL**

Race groups	N	*M*	SD	PA-Low %	PA-Moderate %	PA-High %
White	42	1.5	0.77	61.0%	21.4%	16.6%
Black	215	1.3	0.53	73.0%	23.2%	3.7%
Coloured	16	1.18	0.54	87.5%	6.2%	6.2%

Indian	17	1.06	0.24	94.1%	5.8	0%

The activities classifying girls as having low activity levels are presented according to order of most occurrences in Table 2 and represents 213 girls of different races. From this it is clear that the majority of girls (73.3%) in this survey had low intensity activity levels. The activities the girls participated in are grouped in passive (M<3) and active (M>3) activities according to the METS- value of the activities. Table 2 indicated that more white girls participated in organized school sports like athletics, jukskei and netball than any other group, which correlates with findings of Van Deventer (1999) stating that white girls engage more vigorously in school sport. Traditional games and house chores occured more among black girls (Table 2 and 3). Prista (1998) found the same tendency under Mozambican children and confirmed that traditional games and house chores have a significant impact on their PF. Walking, family care and house chores are distinct features of low socio-economic groups (Kriska, 2000) which correlate with the activities listed in Table 2 for black and coloured children. The majority of black and coloured groups in this survey came from poor socio-economic conditions.

According to Van Deventer (1999) homework, house chores, religious meetings and family-gatherings are activities most frequently engaged in by coloured children in the Cape, which also correlate with the activities of the coloured girls in Table 2. Only a small number of activities of coloured girls were classified in the high intensity level, which may be a contributing factor to their low PA level classification.

Walking slowly was the activity most frequently engaged in by of all the different racial groups. The PDPAR recall over weekdays showed that girls walk home after school hours and back and forth to friends and shops. The Indian girls were the most inactive group and the mean for their walking activities (M=0.73) was also the lowest compared to the other racial groups. Van Deventer (1999) investigated the daily physical activities of children from different races between the ages of 14 to 17 years, and noted that more low intensity activities prevailed for girls than boys. This correlates with the passive activities (TV watching and sleep) that were most frequently observed among all the racial groups. Watching TV (M=6.06 half hours) had the highest time allocation among the Indian girls while coloured girls spend most of their time sleeping (M=5.85). Watching TV is one of the activities girls spend most of their time on, and research indicates that pre-adolescent girls (11 years) spend

more than three hours watching TV per day. According to Pate *et al*. (1997) these children have a 2.9 times greater tendency to be inactive. TV watching patterns of Indian girls in this survey correlated with this tendency. Andersen *et al*. (1998) also found in this regard that 26% American children watched more than four hours TV and 67% two hours per day. It is further indicated by this researchers that 42% of black girls watched more than two hours TV and that their body mass-index and body mass were higher compared to groups that watched less than two hours TV per day.

TABLE 2. **LIST OF PASSIVE AND ACTIVE ACTIVITIES OF LOW ACTIVE GIRLS FOUND AMONG DIFFERENT RACIAL GROUPS**

WHITE GROUP (n=26)				**BLACK GROUP (n=157)**			
PASSIVE		**ACTIVE**		**PASSIVE**		**ACTIVE**	
O Activity	**MET** ***M***	**O Activity**	**MET** ***M***	**O Activity**	**MET** ***M***	**O Activity**	**MET** ***M***

1	Sleep	0.9	3.60	6	Walk slowly	2.8	1.50	1	Sleep	0.9	4.77
2	Watch TV	1.5	3.00	18	Swim (recreative)	5.0	0.15	2	Watch TV	1.5	4.19
3	Homework	1.4	1.92	22	Ride bike	3.0	0.08	3	Eat	1.5	1.57
4	Eat	1.5	2.00	27	Jog	7.0	0.08	4	Sit	1.0	1.10
5	Study	1.8	1.46	29	Play with pet	3.0	0.08	5	Home-work	1.4	0.99
7	Bath	2.0	1.46	30	Athletics	5.0	0.08	7	Study	1.8	0.79
8	Visit	1.5	1.00	31	Walk fast	5.0	0.04	8	Wash dishes	1.6	0.70
9	Sit	1.0	0.80	32	Wash clothes	3.0	0.04	9	Cook	2.1	0.68
10	Travel by car	1.5	0.73	33	Netball	6.0	0.04	10	House chores	2.1	0.60
11	Shopping	2.0	0.53	34	Play hiding	3.0	0.04	11	Write	1.8	0.59
12	Cook	2.1	0.46					12	Read book	1.3	0.59
13	Listen to music	1.5	0.40					13	Visit	1.5	0.36
14	Needlework	1.5	0.40					14	Wash	2.0	0.35
15	Read book	1.3	0.26					15	Travel by car	1.5	0.28
16	Darts	2.5	0.26					17	Religious routine	1.5	0.24
17	Wash dishes	1.6	0.26					18	Sing	2.0	0.19
19	Religious routine	1.5	0.26					19	Shopping	2.0	0.15
20	Talk on phone	1.5	0.11					20	Iron	2.3	0.13
21	Sing	2.0	0.11					22	Listen music	1.5	0.11
23	House chores	2.1	0.07					23	Prepare bedding	2.0	0.10
24	Play cards	1.5	0.07					24	Talk on phone	1.5	0.08
25	Play piano	2.5	0.07					25	Play cards	1.5	0.06
28	Comp./TV games	1.5	0.07					31	Comp./TV games	1.5	0.03
								45	Tell stories	1.5	0.01

4	Walk slowly	2.8	1.26								
16	Wash clothes	3.0	0.25								
21	Fetch water	3.8	0.13								
26	Walk fast	5.0	0.05								
27	Netball	6.0	0.05								
28	Soccer	7.0	0.05								
29	Jump rope	10.0	0.04								
30	Child care	3.0	0.04								
32	Play with stones	3.0	0.03								
33	Play with tins	3.0	0.03								
34	Unpack goods	5.0	0.03								
35	Kick ball	3.0	0.03								
35	Play house-house	3.0	0.02								
38	Carry wood	5.0	0.02								
39	Baseball	6.7	0.01								
40	Tennis	7.0	0.01								

COLOURED GROUP (n=14) **INDIAN GROUP (n=16)**

PASSIVE				ACTIVE				PASSIVE				ACTIVE			
O	**Activity**	**MET**	***M***	**O**	**Activity**	**MET**	***M***	**O**	**Activity**	**MET**	***M***	**O**	**Activity**	**MET**	***M***
1	Sleep	0.9	5.85	7	Walk slowly	2.8	1.00	1	Watch TV	1.5	6.06	9	Walk slowly	2.8	0.73
2	Watch TV	1.5	3.85	15	Play with pet	3.0	0.28	2	Sleep	0.9	2.60	15	Part-time job	5.0	0.26
4	Study	1.8	2.35	17	Wash clothes	3.0	0.07	3	Eat	1.5	2.30	17	Traditional dance	3.0	0.13
5	Visit	1.5	1.42	19	Walk fast	5.0	0.07	4	Sit	1.0	1.93	21	Cricket	5.0	0.06
6	Home-work	1.4	1.28					5	Homework	1.4	1.60				
8	Sit	1.0	0.85					6	Religious routine	1.5	1.06				
9	Travel by car	1.5	0.50					7	Study	1.8	0.93				
10	Bath	2.0	0.42					8	Visit	1.5	0.73				
11	Religious routine	1.5	1.35					10	Shopping	1.5	0.60				
12	Wash dishes	1.6	0.28					11	Bath	2.0	0.53				
13	Sing	2.0	0.28					12	House chores	2.1	0.40				
14	Listen to music	1.5	0.28					13	Travel by car	1.5	0.33				
16	Cook	2.1	0.07					14	Listen music	1.5	0.26				
18	Shopping	2.0	0.07					16	Internet	1.5	0.13				
								18	Wash dishes	1.6	0.06				
								19	Read book	1.3	0.03				
								20	Comp./TV games	1.5	0.06				

O=order of frequency *M*=mean half hours MET= Metabolic equivalent of activity

The previously discussed findings could serve as reasons for the low PA levels of all the girls who participated in this study. White and coloured girls spend between one and a half and two hours per day watching TV and using the computer, while black and Indian girls spend between two and three hours per day watching TV and in front of the computer. Harten (1999) stated in this regard that one main reason for this decline in PA could be the technological progress of the 20th century. A clear tendency was observed among the Indian girls who were the less active group in comparison to other races with the highest TV and computer usage. A somewhat controversial result has shown that black girls were the second lowest active group, where it has been assumed that they will have higher PA levels due to more rural conditions (open spaces, less access to technology (computers and TV) and traditional chores). Violence on the other hand, may have also restricted those in more densily populated areas from freely participating in activity. However, it seems that the activity patterns of different racial groups do influence their PA levels.

Table 3 represents listed passive and active activity preferences of girls (N=77) that are

classified in the moderate to high PA-level and are presented according to frequency of occurrence. According to the PDPAR-scores, 61 girls (21%) were classified in the moderate intensity level, while only 16 girls (5.5%) fell in the high intensity group. Van Mechelen *et al*. (2000) report that girls 13 to 17 years of age showed an increase in participating in activities with a moderate intensity level, but a decrease in high intensity activities. In their research, the intensity level of activities were grouped into three levels; 4-7 METS (moderate), 7-10 METS (high) and more than 10 METS (very high), and according to these intensities, most of the activities in Table 3 fall in the moderate intensity levels. This finding is substantiated by the fact that girls in the North-West Province also took less part in high intensity activities (n=16, 5.5%). With regard to specific activities, white girls engaged in the low and moderate to high categories, and it was seen that their participation in organised sports contributed more to the moderate intensity levels than leisure activities.

It is striking that the highly active classified white girls spend more time on passive activities such as sleep, watching TV, homework and computer-games than the low active white girls. However, white girls who were classified in the high intensity level participated in high intensity activities such as dancing, swimming, bike riding, jogging and aerobics which was not the case among those classified in the low activity group.

Black girls who are classified as moderate to highly active, participate in greater a variety of activities such as rope-jumping, volleyball, soccer, baseball, tennis and variety of traditional games (Table 3), compared to those classified as low active (Table 2). A major difference was observed in the activities that coloured girls engaged in in the high and low active groups. A possible reason for higher intensity classification of the high- active coloured girls could be participation in netball and stone throwing games, which have higher MET-values compared to the activities low active coloured girls engaged in such as walking slowly and playing with pets. A difference noted between the low and moderate active Indian girls were fast walking in comparison to walking slowly. The moderate activities also represented only one moderate active Indian girl. White, black and Indian girls who were classified in the moderate to high active group, spent a high percentage of their time walking, which contributed to their higher intensity levels.

TABLE 3. **LIST OF PASSIVE AND ACTIVE ACTIVITIES OF HIGHLY ACTIVE GIRLS FROM DIFFERENT RACIAL GROUPS**

WHITE GROUP (n=16)

PASSIVE				ACTIVE			
O	Activity	MET	*M*	O	Activity	MET	*M*
1	Sleep	0.9	4.75	5	Dance	3.0	
2	Watch TV	1.5	3.37	7	Walk slowly	2.8	
3	Eat	1.5	1.75	12	Swim	5.0	
4	Homework	1.4	1.50	13	Netball	6.0	
6	Bath	2.0	0.93	15	Touch rugby	3.0	
8	Sit	1.0	0.75	16	Ride bike (slow)	3.0	
9	Study	1.8	0.68	17	Ride bike (fast)	5.0	
10	Computer games	1.5	0.56	19	Jog	7.0	
11	Travel by car	1.5	0.43	20	Mountain climbing	7.0	
14	Visit	1.5	0.31	23	Part time job	5.0	
18	Cook	2.1	0.25	27	Aerobics	5.0	
21	Read book	1.3	0.18	28	Play with pet	3.0	
24	House chores	2.1	0.12	33	Cricket	5.0	
25	Shopping	2.0	0.12	36	Load goods	3.0	
26	Listen to music	1.5	0.12	37	PT	5.0	
29	Wash dishes	1.6	0.06				
31	Talk on phone	1.5	0.06				

BLACK GROUP (n=57)

PASSIVE				ACTIVE			
O	Activity	MET	*M*	(	Activity	MET	*M*
1	Sleep	0.9	5.0	4	Netball	6.0	0.96
2	Watch TV	1.5	3.94	7	Walk slowly	2.8	0.84
3	Eat	1.5	1.58	15	Jump rope	10.0	0.25
5	Home-work	1.4	1.50	17	Tennis sport	7.0	0.25
6	Sit	1.0	0.75	18	Wash clothes	3.0	0.18
8	Wash dishes	1.6	0.81	21	Soccer	7.0	0.17
9	House chores	2.1	0.60	25	Walk fast	5.0	0.10
10	Bath	2.0	0.58	26	Stones	3.0	0.10
11	Cook	2.1	0.58	28	Fetch water	3.8	0.08
12	Read book	1.3	0.53	30	Volleyball	4.0	0.08
14	Church	1.5	0.29	31	Tennis(recreation)	7.0	0.10
16	Visit	1.5	0.22	33	Kick ball	3.0	0.07
19	Shopping	2.0	0.17	34	Child care	3.0	0.07
20	Write	1.8	0.17	35	Ride a bike	5.0	0.05
22	Travel by car	1.5	0.12	36	Hula hoop	5.0	0.05
23	Iron	2.3	0.12	37	Play with pet	3.0	0.03
27	Acting	2.0	0.10	38	Baseball	6.7	0.04

				29	Play cards	1.5	0.08	40	Play with doll	2.5	0.02
				32	Prepare bed	2.0	0.06	42	Toudhers	6.0	0.03
				41	Make fire	2.0	0.05	43	Ride a bike	3.0	0.02
								45	Chop wood	6.0	0.02
								47	Drum magarettes	6.0	0.02
								49	Marbles	3.0	0.02
								50	Hiding	3.0	0.02
								51	Topspinning	2.0	0.02

COLOURED GROUP (n=2) **INDIAN GROUP (n=1)**

PASSIVE			ACTIVE			PASSIVE			ACTIVE		
O	Activity	MET	*M*	O	Activity	MET	*M*	O	Activity	MET	*M*	O	Activity	MET	*M*
1	Sleep	0.9	6.0	3	Netball	6.0	3.5	1	Home-work	1.4	5.0	7	Walk fast	5.0	4.0
2	Watch TV	1.5	5.0	5	Stones	3.0	1.5	2	Watch TV	1.5	4.0				
4	Eat	1.5	2.0	9	Wash clothes	3.0	0.5	3	Eat	1.5	4.0				
6	Bath	2.0	1.0					5	Study	1.8	3.0				
7	Wash dishes	1.6	0.5					6	Sit	1.0	1.0				
8	Cook	2.1	0.5												
10	Play doll	2.5	0.5												

O = Order of frequency *M* = mean half hours MET = Metabolic equivalent of activity

Table 4 shows the descriptive information of the physical fitness status of girls in the different racial groups classified as low active, as well as significant differences between the groups. The results show a tendency where white girls achieved the highest scores in comparison to the other groups in most of the strength (handgrip strength) and arm-strength endurance (bent-arm-hang) variables. Significant differences (p=0.0000) favouring white girls were found between white and black girls regarding arm-strength endurance, which is also in accordance with literature that indicates that white girls have greater strength than black girls (Corlett, 1984). The stature of the white girls was also statistically higher (p=0.0000) than those of the black girls (Table 4). The body/mass index (BMI) serves as a possible explanation for the higher scores of the white girls (Corlett, 1984). However, according to Table 1 the white girls were the most active racial group, probably because of more opportunities to improve arm-strength endurance, while proper nutrition could also be a reason for the higher arm strength endurance among them compared to the black girls. Their activity choices (Table 3) like

swimming and aerobics may therefore have contributed to their higher strength endurance level. Bouchard *et al*. (1997) and Treuth *et al*. (1998) support the results by reporting a positive relationship between the strength of girls and a high PA level.

TABLE 4. **SIGNIFICANCE OF DIFFERENCES IN PF VARIABLES OF GIRLS WITH DIFFERENT RACIAL BACKGROUNDS CLASSIFIED IN THE LOW ACTIVITY LEVEL**

	Racial groups (N=213)				Significance of differences	
Body composition and PF variables	**White (n=26)** ***M***	**Black (n=15)** ***M***	**Coloured (n=14)** ***M***	**Indian (n=16)** ***M***	**p-level**	**Groups**
Body mass (kg)	51.9	46.3	47.7	48.0	NS	
Stature (cm)	162.9	153.2	159.6	159.2	0.00*	White/Black
Fat percentage (%)	24.7	24.4	23.3	27.0	NS	
BMI	20.0	19.6	19.0	19.2	NS	
Handgrip R (kg)	27.1	24.4	23.3	24.0	NS	
Handgrip L (kg)	25.5	22.8	21.9	23.2	NS	

Abdominal strength (7 level)	3.7	2.5	2.7	4.4	0.03*	Indian/Black
Bent arm hang (sec)	8.0	2.8	6.0	5.1	0.00*	White/Black
Sit-and-reach (cm)	26.5	33.0	28.6	24.3	0.03*	Black/White
					0.02*	Black/Indian
VO_2 max ($ml/kg^{-1}/min^{-1}$)	30.4	28.5	30.22	27.2	NS	

NS=not significant; $p<0.05$* significant difference

Black girls showed the highest scores for flexibility and were also significantly more flexible than white and Indian girls. Literature indicates that flexibility is mostly determined by genetic factors (Malina & Bouchard, 1991), although the great variety of activities the black girls participated in could also have contributed to these results.

Indian girls differed statistically from black girls regarding their abdominal strength. This higher abdominal strength in the Indian group is contradictory to the fact that they were the lowest activity group, therefore lower abdominal strength would have been expected to be the norm. The PDPAR-recall indicated walking, shopping, running and traditional dancing as physical activities that Indian girls participated in. Traditional dancing could have contributed to their higher abdominal strength, although genetic factors are reasoned to have the greatest influence (Malina & Bouchard, 1991).

No significant differences exist in VO_2max between the different population groups, although the white girls obtained the highest VO_2max scores. Literature indicates that white girls usually perform better in aerobic fitness than black girls due to a smaller percentage of muscle mass among the latter group (Pivarnik *et al.*, 1995). The PDPAR also indicate that white girls engaged in aerobic fitness programs and jogging (Table 2 and 3), which may have contributed to the results. Morrow and Freedson (1994) indicate a poor to moderate relationship between PA and VO_2max.

From the results the conclusion can be made that the physical activity levels and patterns of girls from different racial groups have a positive relationship with their physical fitness, especially arm strength endurance and to a lesser degree body composition. The results also showed that the physical activity levels and patterns of girls from different racial groups differ.

CONCLUSION

A shortcoming of this study is the fact that the PA levels of the girls is based on information gained on only the frequency of occurrence of activities and was analysed for only one weekday. However, the findings indicate that the physical activity patterns of low active girls from different racial groups did influence the low active groups' physical activity levels during the week. The results correspond with the findings of the study of Van Deventer (1999) which show that coloured girls spend more time on low intensity activities such as homework, house chores, religious practice and reading, which led to their low active classification.

Choice of activity with a high-energy expenditure differs somewhat between the different racial groups, compared to the low intensity activities they engaged in. However, the majority

of activities the girls engaged in were categorised as low intensity level activities. Significant differences occurred between white and black children in favour of the white girls regarding body composition and arm-strength endurance and these differences were explainable by their physical activity levels. Genetic factors also might have played a role in the obtained results where the abdominal strength of the Indian girls and flexibility of the black girls were to a lesser extent influenced by PA. The conclusion that can be made from the results is that a positive relationship does exist between PA and PF variables, especially with regards to arm-strength endurance, and body composition of 13 to 15 year old girls from different racial groups in the North-West Province of South Africa. These results correlate with the findings of Rowland and Freedson (1994) and Marsh and Johnson (1994) who indicated a positive relationship between PA and PF.

It can be recommended that urgent attention regarding the low PA levels of 13 to 15 year old girls in general and coloured and Indian girls in particular is needed. The importance of PA should be emphasised and professionals working with this age group should be educated to guide the child to improved and increasing PA and PF. Little information with regard to PA and PF regarding race, socio-economic status and other important population characteristics are available, therefore, Sallis (1993) emphasised the importance of further research on this topic. More research on PF of South Africa children at present is also necessary to develop new norms as well as information regarding the MET-values of traditional activities of children from South Africa.

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A MEASURE FOR THE BATTING PERFORMANCE OF CRICKET PLAYERS

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ABSTRACT

A single measure that can be used to assess the performance of batsmen in cricket is defined. This study shows how it can be used to rank batsmen. The batting ability of a batsman is generally measured by means of his average. His strike rate is, however, also very important and is often looked at as well. It will furthermore be motivated that a batsman's consistency is also of great importance. The consistency coefficient will be discussed and it's importance will be illustrated by showing that a batsman with a high consistency coefficient has a better chance to get a good score than one with a low consistency coefficient. It will also be shown how the consistency curve can be used to assess the present form of a batsman. By making use of a data set consisting of the statistics of a large group of one-day international players, these three measures will be combined into a single measure that can be used to assess the performance of a batsman and to compare different batsmen with each other. A classification scheme with ten classes according to which batsmen can

be classified will be given. The best batsmen are those who fall into class one. The same procedure will be used to find a formula for batting performance and a classification table for Test players.

Key words: Batting performance; Consistency; Cricket; Present form of a batsman; Rating of batsmen.

INTRODUCTION

A batsman's *batting ability* is customarily measured by means of his average - see Lemmer (2001). If the average of a batsman is calculated from innings to innings, it is found (cf. Figure 1) that after initial and possibly large fluctuations it stabilises and tends to a more or less constant value as the number of innings increases. This limiting value can be interpreted as an estimate of the *batting ability* of the batsman. The average, however, does not reflect his *performance* well enough because it does not take into account any other skills of the batsman. Characteristics like *consistency* (variation of scores) and *strike rate* (average number of runs scored per hundred balls faced) are also very important and should therefore be incorporated into the measure, especially (but not exclusively) in the case of limited overs matches. It will be shown that the Lemmer-Nel (Lemmer & Nel, 2001b) consistency coefficient gives important information about the expected performance of a batsman and how it can be used to assess a batsman's *present form*. This study defines a measure of batting performance and shows how it can be used to rank batsmen.

CONSISTENCY

Measures of the consistencies of batsmen defined in Barr and Van den Honert (1998) as well as Lemmer and Nel (2001a) are based on match scores (i.e. no distinction is made between out and not out scores). Barr and Van den Honert (1998) use the so-called geometric coefficient (GC) whereas Lemmer and Nel (2001a) use its inverse, the coefficient of variation (CV=1/GC). Using match scores has a serious drawback because a low not out score contributes to labelling a batsman as inconsistent when he could have achieved a score closer to or above his average. Another problem is that a very good score also counts against the batsman because it increases the standard deviation and therefore the CV. To eliminate these two deficiencies, the adjusted coefficient of variation (ACV) has been defined in Lemmer and Nel (2001b). The average is defined as the sum of all scores divided by the number of times the batsman was out. The adjusted standard deviation is similar to the ordinary standard deviation excepting that scores above the average and not out scores are not taken into account. Then ACV is equal to the adjusted standard deviation divided by the average. The consistency coefficient is then defined as CC=1/ACV. According to this definition, a batsman is consistent if his scores are generally close to or above his average. On the other hand, a batsman is inconsistent if he gets out for scores far below his average too often (e.g. if more than 35% of his out scores are less than one-third of his average – see the case study to follow). The higher the value of CC, the more consistent the batsman is. The numerical value of CC has no specific physical meaning, so it is difficult to judge a batsman's consistency by simply looking at the value. In order to assess a batsman's consistency based on his CC value, a data set consisting of all the 'current' ODI (one-day international) players of the major cricket playing countries who have played at least 20 innings each, has been used to construct a table containing 10 classes. The data, taken on 11 April 2002 from Cricinfo (2002), comprised 189 players. The 10% with the highest (best) CC values were classified into class one, the next 10% into class two, etc. In order to determine the class boundaries, the bootstrap technique (Efron, 1990: 79) was used to estimate the deciles for the data set. The class

boundaries used for the classification scheme are given in Table 1. A similar data set of Test players taken on the same date was used to calculate class boundaries for Test matches.

TABLE 1. **A CLASSIFICATION SCHEME OF TEN CLASSES FOR CC VALUES FOR TESTS AND ONE-DAY INTERNATIONALS**

Class number	Interval for tests	Interval for ODIs
1	1.86+ -	1.99+ -
2	1.82+ - 1.86	1.94+ - 1.99
3	1.78+ - 1.82	1.90+ - 1.94
4	1.75+ - 1.78	1.86+ - 1.90
5	1.73+ - 1.75	1.83+ - 1.86
6	1.71+ - 1.73	1.80+ - 1.83
7	1.68+ - 1.71	1.77+ - 1.80
8	1.64+ - 1.68	1.74+ - 1.77
9	1.60+ - 1.64	1.69+ - 1.74
10	0.00+ - 1.60	0.00+ - 1.69

It is interesting that batsmen achieve better CC values in ODIs than in Tests and this is probably mainly due to the fact that bowlers are far more restricted in ODIs than in Tests.

The implication of the Lemmer-Nel definition of consistency is that *consistent batsmen have higher probabilities of obtaining reasonable scores than inconsistent batsmen*. In order to illustrate this, a case study was executed, based on an updated data set. It consisted of all current ODI players of the major cricket playing countries who have played at least 20 innings each, taken on 1 February 2003 from Cricinfo (2003a), just before the start of the 2003 World Cup competition (140 in total). Suppose that a batsman is said to fail if he gets an *out* score smaller than one-third of his average. By counting the number of out scores smaller than one third of his average and dividing it by his number of scores, an estimate is found for his probability of failure. The CC values, consistency classes and failure probabilities of a selection of ODI batsmen are given in Table 2. For batsmen who are very consistent (in class one), the failure probability is slightly over 20% whereas for very inconsistent batsmen, the probability is around 35%. This clearly accentuates the importance of being consistent.

TABLE 2. **CASE STUDY OF RELATIONSHIP BETWEEN CC VALUE AND FAILURE PROBABILITY**

NAME	CC	CLASS	AVERAGE	INNINGS	FAILURE PROBABILITY
M Bevan	2.177	1	54.80	168	0.214
R Sarwan	2.109	1	51.05	28	0.214
H Tillakaratne	2.006	1	29.38	159	0.258
J Kallis	1.913	3	44.04	162	0.309
M Hayden	1.878	4	45.53	51	0.294
L Klusener	1.858	5	42.72	121	0.298
S Tendulkar	1.787	7	43.73	294	0.323
G Kirsten	1.786	7	40.56	179	0.346
V Sehwag	1.759	8	36.33	55	0.364
S Jayasuriya	1.74	8	32.14	279	0.355

H Gibbs	1.706	9	34.81	117	0.368

By plotting a batsman's CC values from innings to innings, one can clearly see how consistent he was at every stage in his career. In the top part of Figure 1 a batsman's scores were plotted with not out scores indicated by an asterisk.

The average is also given from innings to innings – see Figure 1. The consistency curve (CC plotted against the innings number) is given in the bottom part of the figure. Normally the CC values vary substantially up to the tenth or even fifteenth innings but then start to stabilise. It must be kept in mind that CC is always calculated by using the deviations of all scores from the most recent average. A very high score increases the average markedly and may cause a lowering of CC because low scores then lie further from the new average than from the previous average. This decline in CC is the price that the batsman has to pay for increasing his average. This phenomenon can be observed by looking at the high not out score of the twenty-third innings. The batsman considered here was fairly consistent between his fourteenth and twenty-seventh innings (he was in classes two or three). A series of very low scores from his twenty-seventh until his thirty-third innings resulted in his CC values dropping from class two to class seven. Here he was not in good form and this is clearly indicated by the sharp decline in his consistency curve. From innings 34 onwards he was in good form and

this is indicated by an increasing consistency curve rising from class seven to three. Note that the low scores of innings 37, 38 and 43 are all not out scores and must not be misread from the top figure as an indication of inconsistency. Actually, the top figure can be very deceptive for judging the Lemmer-Nel consistency. All scores above the present average and all not out scores must be ignored. The bottom figure therefore gives a better indication of form. As shown in the Figure a batsman's *present form* can be judged by looking at the shape of his consistency curve. If the trend is upward, he is improving his consistency and is therefore in good form, whereas a downward trend indicates that he is becoming more and more inconsistent and is not in good form. Clearly a batsman who is very consistent and has a stable consistency curve, is also in good form.

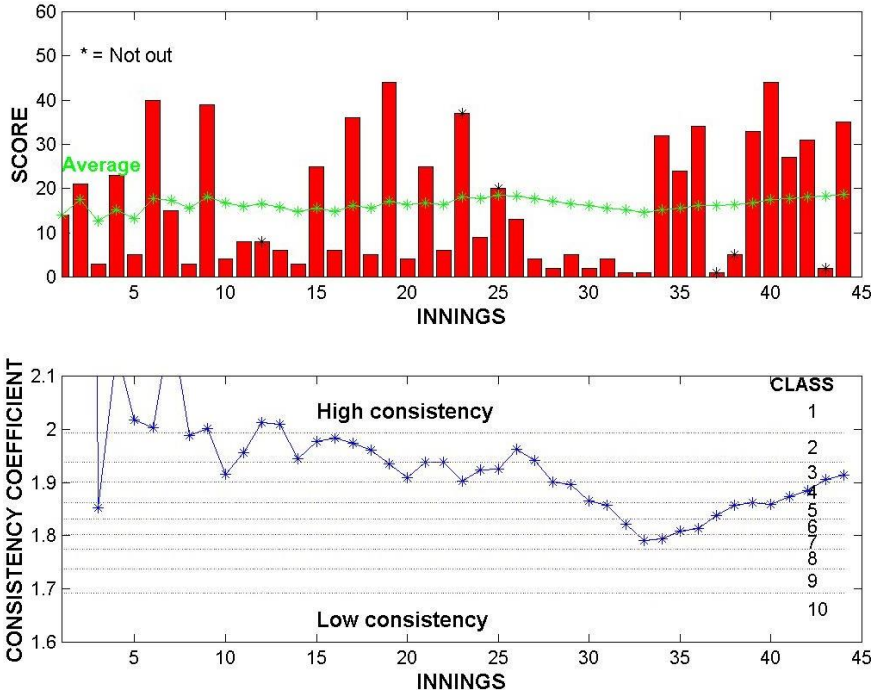

FIGURE 1. **TOP: SCORE AND AVERAGE PER INNINGS,**
BOTTOM: CONSISTENCY COEFFICIENT PER INNINGS

BATTING PERFORMANCE MEASURE

Based on the practical importance of consistency it is important to incorporate CC into a measure of batting performance, as has been done by Barr and Van den Honert (1998). They defined the *consistency adjusted average* by multiplying the average by the geometric coefficient. In this way, they scaled the average up (or down) depending on the extent to which a batsman's consistency deviated from the value *one*, which is seen as the yardstick for a batsman whose scores follow a geometric distribution.

This study now wants to use the consistency coefficient CC to scale the average up or down, but firstly it is necessary to look at the distribution of CC. For the updated data set the average of CC was found to be equal to 1.8173. Thus the ratio C=CC/1.8173 was used as scale factor whereby the average of a player whose consistency is better than the average consistency of the reference group will be scaled up, and one with consistency below the average will be scaled down. In order to construct a realistic measure of batting performance, a batsman's recent scores are more important than the scores at the start of his career. Instead of using the average (which gives equal weight to all scores), it is better to use an exponentially weighted average denoted by EWA in which each weight is equal to 0.96 of the next weight. See Gilchrist (1976: 51) for the formula of the exponentially weighted moving average. In this study the formula is applied only once per player and not repeatedly as in the case of a moving average and is therefore just called an exponentially weighted average.

EWA is calculated for all the batsman's scores. If the last (most recent) score has a weight *a*, the second last weight is 0.96 x *a*, the third last weight 0.96^2 x *a*, etc. This is in accordance with the weights used by PriceWaterhouseCoopers (2002) in their ratings.

Up to this point, the proposed measure has the structure of BP=EWAxC. This is similar to the consistency adjusted average of Barr and Van den Honert (1998), but EWA replaces the average and C the geometric coefficient.

Another very important criterion to be taken into account to assess a batsman's performance is his strike rate SR=average number of runs scored per hundred balls faced. Two opening batsmen may have the same average but the first may have a strike rate of sixty and the second a strike rate of ninety. The latter obviously has better performance than the former. One can use R=SR/average(SR)=SR/71.4286 as a further scaling factor as in the case of C. An important question, however, is whether R and C should have the same weight (i.e. should one use EWAxCxR?). By using the same data set, the statistics given in Table 3 were found.

TABLE 3. **STATISTICS OF ODI DATA SET**

	CC	SR	C	R	RP
Average	1.8173	71.4286	1.0000	1.0000	0.9969
Standard Deviation	0.1230	11.2527	0.0677	0.1575	0.0681

The distributions of C and R have the same average but R has a much higher standard deviation than C. This means that if the formula EWAxCxR is used, R can have a much larger effect than C. In order to avoid R overwhelming C, it is desirable to scale R down relative to C. It is proposed to scale R down in relation to the ratio of their standard deviations, i.e. to work with $R^{0.0677/0.1575}=R^{0.43}$. Define $RP=R^{0.43}$ then average(RP)=0.9969 and standard deviation(RP)=0.0681. The averages and standard deviations of C and RP are now very similar (see Table 3) and the measure of batting performance is defined as BP=EWAxCxRP.

BP can be used to assess the performance of an individual batsman or to compare the performances of a group of batsmen. As in the case of CC, it is useful to draw up a classification table according to which batsmen can be classified. Exactly the same procedure has been followed by using the BP values of the data set. The classes are given in Table 4.

TABLE 4. **A CLASSIFICATION SCHEME OF TEN CLASSES FOR BP VALUES FOR TESTS AND ONE-DAY INTERNATIONALS**

Class number	Interval for tests	Interval for ODIs
1	52.65+ -	46.31+ -
2	43.63+ - 52.65	37.74+ - 46.31
3	37.78+ - 43.63	32.12+ - 37.74
4	32.32+ - 37.78	28.47+ - 32.12
5	27.49+ - 32.32	24.63+ - 28.47
6	23.56+ - 27.49	20.92+ - 24.63
7	20.31+ - 23.56	17.09+ - 20.92
8	14.58+ - 20.31	13.35+ - 17.09
9	7.94+ - 14.58	9.27+ - 13.35
10	0.00+ - 7.94	0.00+ - 9.27

In Table 5, the top players of the data set are ranked according to their BP values.

TABLE 5. **RANKING OF ODI BATSMEN ACCORDING TO BP VALUES**

Rank	Name	SR	AVE	EWA	CC	C	RP	BP	Rank June
1	R Sarwan	79.40	51.05	57.61	2.109	1.161	1.047	69.98	1
2	M Hayden	77.85	45.53	55.03	1.878	1.033	1.038	59.01	17
3	M Bevan	74.44	54.80	46.69	2.177	1.198	1.018	56.93	2
4	J Rhodes	80.95	35.32	45.11	1.990	1.095	1.055	52.14	7
5	Y Youhana	72.33	42.89	51.28	1.811	0.997	1.005	51.39	24
6	D Lehmann	81.87	37.46	43.19	2.034	1.119	1.060	51.26	3
7	D Martyn	77.67	40.14	43.59	1.971	1.085	1.037	49.02	5
8	L Klusener	90.06	42.73	43.25	1.858	1.023	1.105	48.86	6
9	S Tendulkar	86.38	43.73	45.70	1.787	0.983	1.085	48.76	4
10	G Smith	74.39	41.28	40.62	2.140	1.177	1.018	48.66	15
11	H Dippenaar	64.25	42.89	44.72	2.069	1.138	0.955	48.64	12
12	C Gayle	80.25	36.44	45.02	1.827	1.005	1.051	47.57	14
13	J Kallis	69.99	44.04	44.96	1.913	1.053	0.991	46.92	23
14	R Ponting	76.69	41.33	42.22	1.951	1.074	1.031	46.73	8
15	V Sehwag	98.88	36.33	40.81	1.759	0.968	1.150	45.44	26
16	A Flower	74.72	34.89	43.82	1.844	1.015	1.020	45.34	10
17	S Jayasuriya	89.85	32.14	42.38	1.740	0.958	1.104	44.79	34
18	B Lara	78.61	42.65	41.78	1.843	1.014	1.042	44.16	18
19	C Hooper	76.59	35.84	38.49	1.949	1.072	1.030	42.53	29
20	S Chanderpaul	68.98	36.44	40.02	1.960	1.078	0.985	42.52	20
21	R Dravid	68.40	38.39	39.12	1.993	1.096	0.982	42.10	9
22	N Knight	71.39	41.58	40.98	1.865	1.026	1.000	42.04	29
23	A Gilchrist	91.26	34.16	35.34	1.934	1.064	1.111	41.78	16
24	S Elahi	73.29	37.38	39.43	1.838	1.011	1.011	40.31	30
25	H Gibbs	81.31	34.81	40.30	1.706	0.939	1.057	40.01	11
26	M Trescothick	87.95	37.18	36.39	1.782	0.981	1.094	39.03	33
27	M Atapattu	67.18	37.99	39.47	1.828	1.006	0.974	38.68	35
28	S Anwar	80.91	38.94	35.19	1.891	1.041	1.055	38.64	21
29	M Samuels	71.60	32.94	36.52	1.857	1.022	1.001	37.35	49
30	Y Khan	70.61	31.48	36.93	1.836	1.011	0.995	37.13	25

The data set consisting of all current ODI players who have played at least 20 innings until 1 February 2003 contained a number of players who have retired from ODIs, but for the sake of interest they have been retained in the rating. The data set is actually very large because it includes scores of players who have been playing for many years. The statistics used for the development of the formula (cf. Table 3) do not differ much from the statistics of the data set taken on 11 April 2002 because there is a large overlap. Actually, if the 2002 statistics are used in the formula, the BP values per player differ slightly from those of the 2003 data set, but the ranking of all 140 players is exactly the same. There is thus no need to update the formula soon, unless major changes are to be introduced in the rules of the game.

To illustrate the motivation for the construction of BP, take Sarwan as first example. His last 13 scores were exceptionally good, resulting in his average of 51.05 being scaled up to EWA=57.61. Being very consistent with CC=2.109 and C=1.1607 results in a scaling up of EWA by 16.07% to EWAxC=57.61x1.1607=66.8679. His strike rate is also better than the average (R=1.1116 and RP=1.0465) and leads to a further 4.65% scaling up to EWAxCxRP=69.98. It must be mentioned that Sarwan had only played 28 ODI innings until

1 February 2003 and it will be interesting to see whether he could maintain his good performance. Secondly, note that Dippenaar is very consistent – he is in class one with CC=2.069 and has C=1.1383 which scales his EWA of 44.72 up to 50.9048, but his strike rate of 64.25 is below the average, so his RP value of 0.9555 scales 50.9048 down to a BP value of 48.64. These figures of C and RP are not surprising because very often he walks out to bat after a collapse of the top order batsmen and has to consolidate the innings. This he does very well, but at the expense of having to bat carefully and thus sacrificing on his strike rate.
The ordinary averages of the players have also been given in Table 5. It is interesting to note that amongst the group of 30 players shown in the table, Jonty Rhodes ranks 24th on average but fourth according to BP. The large difference between his average of 35.32 and his EWA of 45.11 is proof of the fact that he had much better scores towards the end of his ODI career than before. He was also very consistent (CC=1.990 lies on the boundary between classes 1 and 2). His strike rate of 80.95 was also very good. Taking into account that very often he came in to bat at a stage when fast scoring was necessary, it is clear that his good BP value gives him a much more realistic rating than his fairly low average. Michael Bevan, who ranks first according to average (54.80), is also very consistent and has a good strike rate, but his EWA value of 46.69 indicates that he was not in good form towards the end of January 2003. He is therefore third in the BP ranking.

The last column of Table 5 contains the ranks of the players based on data updated on 3 June 2003. Note that players who have performed well in the period from February until June have improved their rankings, e.g. Gibbs, Dravid, Tendulkar and most of the Australians (except Hayden, who was in a downward spell).

TEST MATCHES

In the case of Test matches, the batting statistics of all the current Test players who have played at least 20 test innings until 1 February 2003, taken from Cricinfo (2003b) have been used. Unfortunately for the players of India, Pakistan and Sri Lanka, the strike rates were not available, so they have been excluded. The statistics for the remaining 86 players are given in Table 6.

TABLE 6. **STATISTICS OF TEST MATCHES DATA SET**

	CC	SR	C	R	RP
Average	1.7372	43.0016	1.0000	1.0000	0.9937
Standard Deviation	0.1247	10.4986	0.0718	0.2441	0.0729

For Tests C=CC/1.7372 and R=SR/43.002. The scale down ratio for R is 0.0718/0.2441=0.2941. Define RP=$R^{0.30}$ and the measure of batting performance as BP=EWAxCxRP.

TABLE 7. **RANKING OF TEST PLAYERS ACCORDING TO BP**

Rank	Name	SR	AVE	EWA	CC	C	RP	BP	Rank June
1	A Gilchrist	82.70	58.11	60.13	1.804	1.039	1.217	75.99	1
2	M Vaughan	52.49	50.93	61.97	1.821	1.048	1.062	68.96	4

3	M Hayden	59.25	51.60	58.94	1.783	1.026	1.101	66.60	3
4	J Kallis	39.63	50.40	65.89	1.761	1.014	0.976	65.18	5
5	R Ponting	57.52	47.91	54.61	1.766	1.017	1.091	60.58	2
6	H Gibbs	48.59	44.48	56.43	1.760	1.013	1.037	59.29	9
7	B Lara	59.22	49.49	49.64	1.782	1.026	1.101	56.05	6
8	A Flower	45.07	51.55	53.05	1.794	1.033	1.104	55.55	10
9	J Langer	51.74	44.32	48.98	1.767	1.017	1.057	52.65	7
10	S Chanderpaul	40.38	44.30	50.62	1.833	1.055	0.981	52.41	11
11	M Richardson	40.10	47.17	46.05	1.988	1.145	0.979	51.61	8
12	G Thorpe	46.57	41.88	46.00	1.784	1.027	1.024	48.39	13
13	A Stewart	48.76	40.13	43.16	1.831	1.054	1.038	47.25	16
14	G Kirsten	42.46	42.89	47.88	1.689	0.972	0.996	46.37	17
15	D Martyn	50.95	46.51	44.15	1.727	0.994	1.052	46.18	18
16	M Trescothick	51.66	40.24	40.08	1.893	1.090	1.057	46.15	14
17	C Cairns	54.24	32.79	40.25	1.829	1.053	1.072	45.44	19
18	S Pollock	50.18	33.45	42.29	1.778	1.023	1.047	45.33	20
19	C Hooper	50.27	36.47	41.12	1.779	1.024	1.048	44.12	23
20	S Waugh	48.13	49.45	43.24	1.709	0.984	1.034	44.00	12
21	N Astle	49.51	38.00	40.69	1.774	1.021	1.043	43.35	24
22	M Waugh	52.27	41.82	38.37	1.790	1.031	1.060	41.93	25
23	M Butcher	42.34	32.99	38.12	1.847	1.063	0.995	40.35	22
24	R Sarwan	38.43	37.39	38.99	1.907	1.098	0.967	40.31	21
25	C Gayle	47.57	35.29	39.02	1.737	1.000	1.031	40.22	26
26	N Hussain	40.34	37.15	40.44	1.751	1.008	0.981	39.98	27
27	M Sinclair	44.80	43.16	41.46	1.636	0.942	1.012	39.54	37
28	N McKenzie	41.47	35.74	35.82	1.904	1.096	0.989	38.84	29
29	C McMillan	56.91	39.68	34.23	1.786	1.028	1.088	38.27	28
30	W Hinds	47.04	32.76	33.79	1.837	1.057	1.027	36.70	33

It is interesting to note that the exponential weight of the strike rate is much smaller in the case of Test matches (0.30) than in the case of ODIs (0.43). This is in agreement with the argument that a player's strike rate in the case of ODIs is more important than in the case of Test matches. For the data set of all the current test players who have played at least 20 innings each (excluding those of India, Pakistan and Sri Lanka), the ranking of the top players in terms of BP is given in Table 7.

Gilchrist is known as a very good Test player and he ranks first according to BP and also according to average. This is in sharp contrast to his ODI career where his strike rate is excellent, but his average only 34.16. Kallis is in position four but would rank first according to EWA, an indication that he was in very good form at the start of 2003.

At the start of this study there was uncertainty whether the strike rate should be incorporated into BP in the case of Tests, but observing strike rates in the low twenties and even 19.65, there remained no doubt that sooner or later the strike rate should be taken into account. Even in Test matches a player with a good strike rate is definitely better than one with the same average but a low strike rate.

The last column of Table 7 contains the ranks of the players according to their performances until 3 June 2003. Note Steve Waugh, who has climbed from the 20^{th} up to the 12^{th} position, which shows how good a batsman he is.

CONCLUDING REMARKS

The construction of BP was motivated by the argument that the exponential weighted average, the consistency coefficient and the strike rate are all important aspects of a batsman's performance. Any one of these, or the average, can be used to rank batsmen, but it makes much more sense to combine them into one criterion, BP.

BP is a measure of the batting performance achieved by a batsman up to his last innings, irrespective of when he played. This does not change if he misses matches or stops playing. A ranking according to BP will therefore differ from the PriceWaterhouseCoopers (2002) ratings because they penalise a player for missing matches. They also take into account various other factors including the strength of the opposition, the level of run scoring in the match, etc. It is a statistical fact that most of these factors tend to average out in the long run and are therefore not so important in the global assessment of batsmen's performances.

BP could be seen as a consistency and strike rate adjusted average as in the case of the Barr and Van den Honert (1998) measure, but should rather be described as a measure of the intrinsic performance value of the batsman.

BP is not only useful for the ranking of batsmen, but can also be used to monitor a specific batsman during the course of his career. By plotting his BP from innings to innings, one can see whether he is improving or deteriorating. This can be useful for a coach and for selectors. BP has the advantage that it combines the different aspects that are important for a batsman to be good.

The consistency curve (see the bottom part of Figure 1) is very useful to show the consistency and present form of a batsman. CC and BP can very easily be calculated and plotted by using computer software.

Cricket authorities will have to make more use of such measures instead of simply relying on their 'gut feeling' of players' performances.

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THE WORLD ANTI-DOPING CODE: A SOUTH AFRICAN PERSPECTIVE

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ABSTRACT

During February 2003 the World Anti-Doping Agency adopted the World-Anti Doping Code in Copenhagen in an effort to create and independent anti-doping body and to co-ordinate the harmonisation of doping regulations. The Code encompasses the principles around which the anti-doping effort in sport will revolve in future and has since been adopted by the International Olympic Committee. Many countries, including South Africa, are signatories to the Copenhagen Declaration that was adopted at the same time in an effort to involve governments in the fight against doping in sport. This commentary deals with the effect and possible legal implications of this Code in the South African context and endeavours to show that unless the purpose of doping control is more clearly defined, the Code will not be effective in a human rights culture.

Key words: Doping; Harmonisation; Constitutionality; Strict liability; Restraint of trade; World Anit-doping Agency (WADA); World Anti-doping Code.

INTRODUCTION

To dope or not to dope? To ban or not to ban? These are two of the critical questions that athletes and sport administrators have grappled with since the first concerted efforts by sport governing bodies to address the use of performance enhancing substances in the 1960's (Buti & Fridman, 2001).

Doping, like match fixing and other forms of cheating, is regarded as being fundamentally contrary to the spirit of sport. The 'spirit of sport' is often defined to include notions of fair play and concern for the health of athletes. Superficially, the latter can be countered by an argument based on freedom of choice, but the former is based on an ethic and morality for which there is (almost) universal acceptance (Gardiner *et al.*, 2001; O'Leary, 2001). In this paper, it is argued that an understanding of the spirit of sport goes to the heart of doping control and is central to the enforcement (or lack thereof) of anti-doping regulations by the courts.

It is today generally accepted that athletes who participate in team sports are employees and, accordingly, that labour laws are applicable to them (Van Niekerk, 1997). Irrespective of whether they turn to the labour or civil courts to challenge decisions of sport governing bodies in connection with a doping violation, athletes almost invariably seek to review either the decision itself, on grounds of procedural propriety or rationality, or, alternatively, the *legality* of the applicable rules. In respect of the latter, athletes endeavour to show that the relevant doping rule offends public policy or the 1996 Constitution of the Republic of South Africa

(Act 108 of 1996), (Beloff, 1989; De Waal *et al*., 2001; *Coetzee v Comitis and Others*, 2001 (1) SA 1254 (C)).

This paper deals with the effect and possible legal implications of the World Anti-Doping Code (2003) in the South African context. After a brief overview of the background and key issues dominating the debate, the focus shifts to a discussion of this Code. The main aim is to discuss how doping control will be regulated in future. In addition, comments will be made on the merits and purposes of doping control, insofar as these issues impact on the *legality* of doping control in South Africa.

BACKGROUND

Even proponents of the view that doping undermines the spirit of sport appear to have lost faith in the integrity of existing doping control systems. Prevailing scepticism is understandable, given the number of athletes who test positive for banned substances, but still manage to slip through the extremely wide cracks of the existing system. In addition, 'cover-ups' and inconsistencies appear rife. Not so long ago, the Australian Rugby Union, apparently out of fear of losing one of its top players for two years, covered up a positive test by withdrawing the player from a match under the pretence of injury. More recently, Australian cricketer Shane Warne was banned for one year after testing positive for diuretics, in circumstances where the regulations provide for a two-year ban, despite the fact that the adjudicating tribunal described his evidence as vague (*Australian Cricket Board v Warne*, 2002).

Furthermore, national laws have increasingly intruded into the sports arena and complicated the international fight against doping. A celebrated example is that of the British shot putter,

Paul Edwards. In 1994, Edwards was sent home after a positive test at the Commonwealth Games. At the time, the rules of the International Amateur Athletics Federation (IAAF) provided that where an athlete tests positive, the national governing body should ban the athlete for a period of four years. German athletes who tested positive contemporaneously were reinstated after two years because German courts deemed the four-year ban to be an unreasonable restraint. The four-year ban imposed on Edwards (who could not claim the same relief in an English court) remained in force, despite the fact that German athletes found guilty of the same offence could resume participation after two years. The IAAF had two options: either expel the national governing body for not enforcing the rule, or reinstate athletes from countries that had deemed the ban unreasonable. As a result of this anomaly, the IAAF was eventually compelled to reduce the period of the ban to two years at its 1997 congress (Gardiner *et al*., 1998). By contrast, the International Swimming Federation (FINA) still provides that for a first doping offence involving, for instance, anabolic agents or diuretics, a minimum four-year suspension shall apply.

In addition to these inconsistencies, questions are also asked about the fairness of a process where testing and sanctioning after a positive test are performed by one and the same body. It has often been suggested that an independent agency should assume responsibility for doping control (Buti & Fridman, 2001; Gardiner *et al*., 2001).

THE WORLD ANTI-DOPING AGENCY

In 1999, in an effort to create such an independent body and to co-ordinate the harmonisation of doping regulations, the International Olympic Committee (IOC) convened a conference in Lausanne on doping in sport. At this conference the World Anti-Doping Agency (WADA), funded by the IOC and certain governments, was formed. After extensive consultation with all stakeholders, the World Anti-Doping Code, (hereafter referred to as the Code) was drafted and subsequently adopted in Copenhagen during February 2003. The signatories of the Code - the IOC and International Sport Federations - have undertaken to implement the Code before the start of the 2004 Olympic Games.

The Code must be distinguished from the Copenhagen Declaration on Anti-Doping in Sport (2003) that was signed by many countries at the same time. The Code is not binding on national governments and an instrument such as a convention is required to create legally binding obligations (Article 22). Signing the Copenhagen Declaration is therefore merely evidence of a government's commitment to incorporate the Code, via an international convention, into the constitutional and administrative framework of that particular government before the Turin Winter Olympic Games in 2008.

THE CODE

General

The Code is one of the three elements of WADA's World Anti-Doping Program that also includes International Standards (Laboratory Accreditation, Prohibited List and Therapeutic Use Exemptions and Testing Standards) as well as Models of Best Practice. Broadly speaking, the Code encompasses the principles around which the anti-doping effort will evolve. Technical and operational issues will be regulated in the International Standard (which will be mandatory). Models of Best Practice will regulate incidental issues and signatories will have the choice of either adopting these models or developing their own rules and regulations

consistent with the general principles of the Code.

For instance, the principle of unannounced, out-of-competition testing is endorsed in article 2.4 of the Code, but the procedures for collecting information regarding athlete whereabouts to secure such testing is contained in the International Standard and the rules for a hearing are suggested in the Models of Best Practice.

The principles

If and when the Code becomes effective, administrators, athletes and lawyers will be faced with new challenges and, hopefully, fewer loopholes. It is submitted that the following eight issues go to the heart of the Code:

Deconstructing doping

The relationship between the athlete and the sport governing body is essentially a contractual relationship and the latter has no inherent power to enforce doping control or to discipline the former, unless there is specific provision to that effect in the contract. For example, in 1992, Katrin Krabbe, a German athlete, was found guilty of tampering with her urine sample that

was collected out-of-competition. Mysteriously, the samples provided by Krabbe and two other athletes were identical and from the urine of the same female. Krabbe's appeal against the decision was successful on the basis that there was no provision for out-of-competition testing in the rules of the German Athletics Association (Buti & Fridman, 2001). Clear and unambiguous definitions and contractual terms are therefore essential.

Currently, there is no common legal definition of doping for all sports. Successful harmonisation cannot be achieved unless this stumbling block is removed. Furthermore, the lack of a sufficiently precise definition lies at the root of sport governing bodies' failure to prosecute doping cases successfully (Vieweg & Paul, 2002). As pointed out by Vrijman (2001), definitions of doping often contain vague and non-specific terms, such as 'use' and 'presence', and often refer to the consequences of doping rather than the act of doping. Most sport governing bodies have now adopted the list of prohibited substances published by the IOC in the Olympic Movement Anti-Doping Code (OMADC) as their own. To stay abreast of medical developments, this list (of the OMADC) contains a reference to 'related substances'. This has led to vagueness and confusion since athletes, in the ordinary course, have no knowledge of these substances in the absence of expert guidance (Vieweg & Paul, 2002).

Consequently, one of the most important challenges faced by the drafters of the Code was to find a definition precise enough to be legally acceptable, yet flexible enough to accommodate developments in the laboratory. In Article 1 of the Code, doping is defined as the occurrence of one or more of the eight anti-doping violations listed in Article 2 of the Code. The most far-reaching of these include reference to the *presence* of a prohibited substance in an athlete's bodily specimen and the failure to be available for out-of-competition testing, including the failure to provide whereabouts information for purposes of such tests (Article 2.1 & Article 2.4).

Strict liability

The former violation endorses strict liability in that an athlete will be guilty of doping if the substance on the Prohibited List (the List) is found in the athlete's specimen, whether or not

the athlete used the substance intentionally or negligently. The hitherto inconsistent approaches to strict liability by various sport governing bodies are much to blame for the poor perception of doping control. For instance, the International Shooting Union (UIT) requires not only a positive test, but also proof that the banned substance was taken by the athlete with the *aim* of attaining an advantage, but FINA and IAAF regulations merely require the presence of a banned substance (Gardiner *et al*., 2001). Even from disciplines acknowledging strict liability, different results often emerge from similar facts. According to Buti & Fridman (2001), this is probably the result of ruling bodies allowing the desire to protect the image of their sport or the quality of the athlete to impact on their judgement. For example, in 1995 Samantha Riley failed a doping test at the world swimming championship after accepting a headache pill from her coach. No sanction was imposed against Riley, apparently because of her good record. Yet, at the 2000 Olympics gymnast Andrea Raducan lost her gold medal after the team doctor treated her for a cold with a banned substance that gave her no competitive advantage (Buti & Fridman, 2001). The application of the Code, which is a step removed from specific sports, ought therefore to assist with a more clinical approach to strict liability.

However, strict liability as envisaged by the Code, is only applicable in determining whether a doping violation has taken place or not - intention or lack thereof may yet be considered during the sanctioning phase (Article 2.1.1).

Strict liability, as pointed out by Gardiner *et al*. (2001), is rather draconian and therefore requires rigorous checks and balances. However, it must be conceded that doping control will be almost impossible without it.

Whereabouts information

Unannounced, out-of-competition testing lies at the core of effective doping control (Article 2.4). The pharmacological qualities of many substances are such that detection is only possible for a very short period after consumption and it is now generally acknowledged that an effective anti-doping programme must include out-of-competition testing (Gray, 2001). It is believed that East German athletes escaped detection for many years due to the absence of out-of-competition testing and a comprehensive 'clearing' procedure before athletes were allowed to participate outside East Germany (Ungerleider, 2001).

Out-of-competition testing will only be sustainable if information regarding the whereabouts of the athlete is available at all times. The collection of information regarding athlete whereabouts is regulated by an International Standard. The violation in this regard also endorses the principle of strict liability since intent or negligence is not required.

The prohibited list

It is envisaged that WADA should publish, on at least an annual basis, a List as an International Standard. The List shall identify substances and methods that are prohibited at all times (in-competition and out-of-competition) and those substances and methods that are only prohibited in-competition. Unless a quantitative reporting threshold is specifically identified in the List, any quantity shall constitute a violation (Article 2.1.2). A substance or method shall be included on the List if: (a) *two* of the following criteria are met: it has the potential to enhance performance; it violates the spirit of the sport or it represents a potential health risk, or (b) it has the potential to mask the use of prohibited substance or prohibited methods (Article 4.3). This means that a substance or method may be listed even though it has no

performance enhancing or masking capacities. Once included in the List, an athlete cannot question the inclusion of the substance on the basis that it would not have enhanced performance in a particular discipline (Article 4.3.3). These two aspects are revisited below.

The 2004 List was recently published by WADA and will come into effect on 1 January 2004. It is expected that more certainty will be created by the (at least) annual revision and publication of the List. The frequent revision of the List should accommodate the banning of new substances and methods as they emerge from the laboratories. However, the reference to 'related substances' is replaced by a reference to substances with a similar chemical structure or effects as the banned substance or their analogues. This, unfortunately, recreates the uncertainties caused by the term 'related substances'.

On the premise that there are certain basic substances that athletes should not take, individual sports will not be permitted to seek exemption from the basic List, but may request that certain substances and methods be added for their specific sport (Article 4.2). An example is the addition of beta-blockers for shooting or archery (Beta-blockers slow the heart rate: which is opposite to the effect required for optimal results in most other sports.).

Other violations

The other violations listed in Article 2 do not rely on the principle of strict liability since intent or negligence is either specifically required or implied in the nature of the offence. These include the use or attempted use of a prohibited substance or prohibited method; refusing, or failing without compelling justification, to submit to sample collection after notification as authorized in applicable anti-doping rules or otherwise evading sample collection; tampering, or attempting to tamper, with any part of doping control; possession (by an athlete or athlete support personnel) of prohibited substances or methods; trafficking in any prohibited substance or prohibited method and administration or attempted administration of a prohibited substance or prohibited method to any athlete, or assisting, encouraging, aiding, abetting, covering up or any type of complicity involving an anti-doping rule violation or any attempted violation.

The escape routes

Hitherto there has been a perception (rightly or wrongly) that the existing system is too porous. To address this perception, the Code aims to regulate therapeutic use exemptions (TUE's) far more strictly. Unless an athlete has 'registered' the use of substances in advance through the appropriate procedure, as regulated by an International Standard, such use cannot be raised as a defence *ex post facto* (Article 4.4). Furthermore, the Code aims to describe the impact of a doping violation on the result achieved in the competition, as well as on the eligibility of the athlete to participate in future events, in a more definitive fashion.

Thus, if an athlete tests positive, the individual result obtained in the competition where the sample was collected, as well as subsequent results, will be disqualified and medals, points and prizes will be forfeited (Article 10.1 & Article 10.7). The argument is that, even if the athlete can show the absence of intention or negligence, an unfair advantage was obtained and the other participants should not be prejudiced. Similarly, if the violation occurred during an event such as the Olympic Games or a World Championship where the athlete participates in a series of events (e.g. heats and finals / breaststroke and freestyle), all the athlete's individual results will attract the same censure unless the athlete can prove lack of fault *and* it can be

shown that the athlete's performances in the other competitions at the event were not affected by the anti-doping violation (Article10.1 & Article 10.2).

Article 10.2 provides that for a first violation in respect of the following offences, a two-year ban must be imposed, followed by a life ban for further violations:

(a) the presence of a prohibited substance;
(b) the use or attempted use of a prohibited substance or prohibited method;
(c) possession of a prohibited substance or prohibited method;
(d) refusing or failing to submit to sample collection; or
(e) tampering with doping control.

However, the imposition of these penalties is not absolute and there is some discretion to have the ban reduced or completely eliminated. For instance, in respect of (a) and (b) above, if the

athlete can establish *no fault* or *negligence* and can establish how the prohibited substance entered his or her system, the period of ineligibility will be eliminated (Article 10.5.1.1). If no *significant fault* or *negligence* can be established in the case of (a), (b) and (d), the ban may be reduced, but the reduced ban may not be less than half that which would otherwise have been applicable. If the period of ineligibility is a lifetime, the period may be reduced to no less than eight years (Article 10.5.2). No significant fault or negligence is defined to mean that, while present, it is insignificant when viewed in the totality of the circumstances. For instance, taking, without checking the labelling, a headache pill containing a banned substance that has no performance enhancing capacities.

In respect of the other violations (trafficking and administration of prohibited substances or prohibited method), a four-year ban shall be imposed, but in the case of the violation concerning the administration of prohibited substances or methods, the ban may be reduced to not less than two years (Article 2.7, Article 2.8 & Article 10.5.3). For violations in respect of 'athlete whereabouts information', a ban from between three months to two years may be imposed for a first violation (Article 10.4.3).

Furthermore, certain substances may be identified as being susceptible to unintentional violations because of their general availability or because they are less likely to be abused as doping agents, e.g. flu and cold medicine. Where the athlete can show that the use of such substances was not intended to enhance performance, Article 10.3 of the Code provides that the penalty may be anything between a warning and a one-year ban for a first violation, followed by a two-year ban for a second violation and a life ban for a third violation.

The standard of proof

The standard of proof in doping matters remains a contentious issue (Beloff, 2001; Oshütz, 2001). Article 3 introduces a new standard of proof, namely, whether the sport body has established one of the eight doping violations referred to above 'to the comfortable satisfaction of the hearing body bearing in mind the seriousness of the allegation which is made'. The exact meaning of this standard is not explained, but in the commentary on Article 3.1, reference is made to *Y., J., Y., W., v FINA* (2002), an award of the Court of Arbitration in Sport (CAS), in which this standard of proof is described as being more than the ordinary civil standard, but less than the criminal standard. Since this is a standard of proof unknown in most jurisdictions, and certainly in South Africa, more pertinent guidelines should be

provided. The reference to the 'seriousness of the allegation' may also lead to confusion. It is submitted that the quality of the evidence should determine whether an offence has been committed, as opposed to the seriousness of the allegation. Although not quantifiable, the criminal and civil standards of proof, i.e. 'beyond reasonable doubt' and 'on a balance of probabilities', are so well embedded in jurisprudence worldwide that one must question the wisdom of introducing a standard of proof which has no universal application nor intuitive understanding, in light of the fact that this may result in inconsistent rulings.

Article 3.2 states that it will be presumed that the laboratory has followed the correct analysis and custodial procedures as prescribed in the International Standard and that the onus will be on the athlete to rebut this presumption by showing a departure from the Standard. The accompanying commentary to this Article states that the athlete may rebut this presumption by showing a departure from the International Standard on a preponderance of the evidence,

whereupon the burden shifts to the sport body to establish that such departure did not cause an *adverse analytical finding*. Although this commentary does not form part of the main body of the Code, it may serve to add to the confusion surrounding the applicable standard of proof. One standard applies to the body making the allegation and another to the athlete who is required to rebut the presumption. On the other hand, the notion that a lesser standard of proof is applicable to athletes rebutting a presumption is not inconsistent with the approach in the South African laws of evidence (Hoffmann & Zeffert, 1988; Beloff, 2001; Soek, 2002).

General

The other principles endorsed in the Code are less controversial. Although the principles of fundamental fairness of the results management process and the right to a fair hearing are endorsed, no specific procedures are prescribed by the Code. For instance, although a sport body is required to observe the requirements of a fair hearing, the nature of the hearing, i.e. inquisitorial, accusatorial or a combination thereof, is left open (Article 7 & Article 8).

In the case of a ban, the ineligibility of the athlete commences on the date of the decision, but, in the case of a provisional suspension, the period of the provisional suspension shall be credited to the athlete (Article 10.8). The athlete will also be credited for delays in the hearing process not attributable to the athlete. This approach will discourage athletes from dragging out the hearing process. Article 10.9 further precludes an athlete from practising with a national team or to coach or act as sport official during the ban.

Where more than one member of a team tests positive for a banned substance, the team shall be subjected to target testing. This means that athletes will be selected for testing on a non-random basis. Article 11 of the Code provides that if more than one member of the team is found guilty, the entire team *may* be disqualified or banned.

In the case of an international event or cases involving international level athletes, Article 13.2 of the Code provides that decisions may be appealed exclusively to CAS. In cases involving national level athletes, an appeal lies to an independent and impartial body in accordance with rules established by the sport governing body concerned, unless the athlete has a right of appeal to CAS in terms of the rules of that body (Article 13.2).

In Part 2 of the Code, emphasis is placed on the need for athletes to be educated. This is nothing new. Most sport governing bodies and governments offer comprehensive programmes

in this regard. In South Africa, this function is co-ordinated by the South African Institute For Drug-Free Sport established in terms of the South African Institute For Drug-Free Sport Act, 14 of 1997.

THE APPLICATION OF HUMAN AND OTHER RIGHTS

General

WADA approached three prominent international lawyers to provide an opinion on whether the provisions concerning strict liability, automatic disqualification of an athlete's results in the competition where the athlete tested positive, the potential disqualification of all the athlete's competitive results at the entire event (e.g. the Olympic Games) and the sanctions for

anti-doping rule violations, offend international law and human rights. A favourable opinion was expressed on the basis that these restrictions are proportionate and that, in the case of the disqualification of results other than those obtained in the number in respect of which the positive test was recorded and also in respect of a possible ban, the athlete has the opportunity to eliminate or to reduce the disqualification or ban if it is shown that there was an absence of fault, negligence or significant fault or negligence (Kaufmann-Kohler *et al*., 2003).

In South Africa, the true test will be whether the Code can survive scrutiny in terms of the 1996 Constitution.

The limitation clause

Chapter 2 of the 1996 Constitution (the Bill of Rights) guarantees certain basic fundamental rights that should ordinarily not be limited or encroached upon. The fundamental rights that are possibly limited by the Code are the rights to privacy and freedom of movement (possibly limited by the whereabouts requirements in the Code); the right of an accused person to be presumed innocent (possibly limited by the strict liability provisions of the Code); the right to freedom of trade, occupation and profession and the right to fair labour practices (the latter two possibly limited by the ineligibility provisions of the Code). Fundamental rights, however, are not absolute – competing fundamental rights and societal needs can place a limitation on the exercise of fundamental rights. Section 36(2) of the 1996 Constitution provides that no law may limit any fundamental right except as provided in section 36 (1) or in any other provision of the 1996 Constitution. Section 36(1) reads as follows:

> The rights in the Bill of Rights may be limited only in terms of law of general application to the extent that the limitation is reasonable and justifiable in an open and democratic society based on human dignity, equality and freedom, taking into account all relevant factors, including-
>
> (a) the nature of the right;
> (b) the importance of the purpose of the limitation;
> (c) the nature and extent of the limitation;
> (d) the relation between the limitation and its purpose; and
> (e) less restrictive means to achieve the purpose.

Clearly this allows for the limitation of fundamental rights, but only for a very important purpose, recognised by reasonable citizens, that can only be achieved by limiting the right in

question (De Waal *et al*., 2001). The limitation by the Code of fundamental rights can therefore only be justified if it is the only way to achieve a particularly important purpose.

This raises the question: what is the purpose of doping control? The fundamental rationale of the Code is described as an effort to preserve the spirit of sport, i.e. the celebration of the human spirit, body and mind, characterized by values such as ethics, fair play, honesty, health, excellence in performance, character, education, fun and joy, teamwork, dedication and commitment, respect of rules and laws, respect for self and other participants, courage, community and solidarity. While this rationale is laudable, the fact is that modern professional sport has moved on from Corinthianism to big business where, it is required that winning,

instead of the celebration of 'spirit, body and mind', is a fundamental component for success of the enterprise.

Will our courts accept this broad rationale as the purpose of doping control? Put differently, will the courts uphold doping control in instances where the prohibited substance, such as cannabis and cocaine, has no masking or performance enhancing capacities, but is bad for the athlete's health? Furthermore, even if the courts accept such a broad purpose, are these values important enough to an open and democratic society based on freedom and equality to justify a limitation of a fundamental constitutional right?

Turning to the first question, it is doubtful whether the courts, when delineating the purpose of doping control, will couch it in such wide terms. While there is no case law to support this point, it is suggested that in order not to encroach unnecessarily upon fundamental rights, the courts will formulate the purpose of doping control in fairly narrow terms, namely to ensure fair play. Furthermore, turning to the second question, and assuming that the courts will accept such a broad purpose, it is suggested that reasonable citizens, while they may find the use of drugs unacceptable, will not regard it as compellingly important for sport bodies to uphold anything more than the notion of fair play (De Waal *et al*., 2001). These replies are made with reference to the ample available evidence suggesting that competitive sport is not always good for one's health and the fact that sport governing bodies show little regard to issues of health when they associate with harmful products such as alcohol and tobacco through sponsorship (Buti & Fridman, 2001; O'Leary, 2001).

These considerations are of particular importance in respect of the List. An athlete may not show that the substance on the List for which he or she has tested positive has no performance enhancing qualities in his or her sport. If the substance is on the List for health reasons only and the protection of the athlete's health is accepted as important enough for the purpose of section 36 of the 1996 Constitution, the implication would be that not only sport cheats, but also social delinquents are targeted by the Code. It is doubtful whether the courts will accept that it is the function of sport governing bodies to regulate such use, however reprehensible it may be.

The Code, in Article 4.2, envisages the possibility of representatives of individual disciplines requesting the addition of certain substances to the List for their sports, but they may not ask that listed substances be removed for their sport since 'there are certain basic doping agents which anyone who chooses to call himself or herself an Athlete should not take'. Such a sweeping list would (perhaps) have been justifiable if there had been no less restrictive means to distinguish between the effects of substances in different sports or to achieve doping control (either in the narrow sense as advocated above, or in the broad sense as captured in the

fundamental rationale for the Code) (Vrijman, 2001). The fact is that a process is in place to add substances for the purpose of a specific sport and there is no reason why the same process cannot be utilized to exclude certain substances for the purposes of a specific sport.

It is suggested that before the Code can safely enter South African law, whether through legislation or the rules of governing bodies, the purpose of doping control requires more attention and fine-tuning.

A limitation in terms section 36(1) will, furthermore, only be justified if it is 'law of general application'. If the Code enters South African law via legislation, there is no doubt that it will qualify as a law of general application and it must meet the criteria set out in section 36(1) (De Waal *et al*., 2001). If the Code is only incorporated into the rules of sport governing bodies (which in South Africa are almost without exception voluntary associations) without legislative intervention, it is doubtful whether such rules can be regarded as 'law of general application'. The question, with reference to the common law, will then rather be whether the Code offends public policy. Since the latter is today rooted in Constitutional values (*Brisley v Drotsky*, 2002 (4) SA 1 (A)) this question, it is suggested, will be answered by following an approach analogous to section 36(1) and will result in the same conclusion as discussed above, since our law cannot sustain two conflicting value systems.

Restraint of trade

To what extent can it be claimed that the initial two-year ban constitutes an unreasonable restraint of trade? Some International Federations, such as FIFA (football) and UCI (cycling) have claimed that it will be very difficult for an athlete to regain excellence after a two-year absence and that such a ban will be an unfair restraint of trade. Indeed, this is the basis on which many athletes have in the past challenged a ban (Buti & Fridman, 2001).

Section 22 of the 1996 Constitution provides that every citizen has the right to choose their trade, occupation or profession freely and that the practice of a trade, occupation or profession may be regulated by law.

In *JR 1013 Investments CC and Others v Minister of Safety and Security and Others* 1997 (7) BCLR 925 (E) it was held that section 22 of the 1996 Constitution protects only the right to choose a trade, occupation or profession and that the right to engage in such an activity is always subject to a variety of restrictions - some of them natural, others man-made – that have nothing to do with constitutional rights. Section 22 therefore apparently excludes only those restraints of trade that deny a citizen the right to choose his or her trade, profession or occupation freely (Prinsloo, 2000). It is suggested that a ban to participate as an athlete is merely one of the man-made restrictions referred to above. It may accordingly be difficult for a banned athlete to rely directly on the 1996 Constitution for protection. The only possible exception to this is the provision of the Code rendering the athlete ineligible for activities incidental to the sport such as coaching or officiating (*Cronje v United Cricket Board of South Africa*, 2001 (4) SA 1361 (TPD)), which may offend section 22.

That, however, is not the end of the enquiry. The question remains whether such a restriction amounts to an unfair restraint of trade. In this regard it has repeatedly been held that *Magna Alloys and Research (SA)(Pty) Ltd v Ellis* 1984 (4) SA 874 (A) is still good law: a restraint of trade is enforceable if it does not offend public policy (*Coetzee v Comitis and Others*, 2001 (1) SA 1254 (C)). The 1996 Constitution has not changed this. The nature and content of public

policy may, however, have changed to reflect the spirit and objects of the 1996 Constitution. Today, public policy is rooted in the 1996 Constitution and the fundamental values it protects (*Brisley v Drotsky*, 2002 (4) SA 1 (A)).

Considering the evil of doping, the unfair advantages that can be gained by doping, the efforts to educate athletes about doping and the fact that there are many provisions in the Code that

provide the athlete with an opportunity to show special circumstances that will justify either a reduction or a complete elimination of a ban, it is difficult to imagine that a two-year ban (and a life ban for subsequent transgressions) will offend a public policy rooted in principles of fairness, proportionality and reasonableness.

A novel approach, untested in South African sport, would be to regard the doping provisions as ordinary contractual terms and the ban as an agreed remedy for breach of contract. This, however, will still require the covenanter to show that the contractual terms (including the agreed remedy) do not offend public policy.

THE FUTURE

The IOC and other International Sport Federations have undertaken to implement the Code before the first day of the Summer 2004 Olympic Games. It may be some time before the principles of the Code are incorporated into the constitutional and administrative framework of South Africa. At his address at the opening of the World Conference on Doping in Copenhagen (2003), the South African Minister of Sport and Recreation, Mr. Balfour, alluded to the role of the South African government in the process leading up to the conference and stressed that governments, as the custodians of sport in their territories, ought to take the lead in the fight against doping. There is therefore clearly a political will to implement the Code in South Africa. The South African Institute for Drug-Free Sport Act, 14 of 1997 is the obvious vehicle for this process. However, certain amendments will be required. Some of the definitions in the Act, for instance, do not correspond with those of the Code, e.g. doping. In view of the relatively slow legislative processes in South Africa, it is doubted whether the Act can be amended (or a new act passed) in time for the 2004 Olympic Games. It is therefore more likely that the Code will first be adopted by individual sport codes. Whether the principles of the Code enter the South African sports arena via legislation or via the constitutions of international governing bodies, its application as it currently stands will give rise to serious legal questions. Decisions taken in terms of the Code may not be enforceable in South Africa, yet again leading to the anomaly (set out above) that athletes subject to different jurisdictions are treated differently. It is not suggested that the efforts to harmonise doping control be quashed. Harmonisation may indeed be the only way forward. However, many of the potential problems, locally and internationally, can be addressed by narrowing the purpose of doping control to the countering of artificial performance enhancement only and by abandoning the paternalistic attitude that sport governing bodies may dictate what is in the interest of the athlete's health. In its present form, the Code will not sit comfortably in a human rights culture. Furthermore, while processes will become clearer once all the International Standards are published, the new standard of proof is an unknown animal and may result in inconsistent rulings. To ensure consistency it is suggested that governing bodies should revert to the traditional civil burden of proof.

Having said this, the Code is a commendable effort to codify the common denominators in the fight against doping and will, despite the misgivings alluded to above, in all likelihood be

implemented in its present form. The full extent of its limitations will therefore only become apparent through its application. Hopefully it will be regarded as a living document, flexible enough to accommodate adjustments as shortcomings become more apparent.

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A COMPARISON OF THE MOTOR PROFICIENCY OF CHILDREN WITH AND WITHOUT LEARNING DISABILITIES

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ABSTRACT

This study aimed to determine if children with learning disabilities showed any significant differences in motor proficiency from "normal" children, that would warrant special attention when addressing their physical education movement needs. Sixty children with learning disabilities and sixty children without learning disabilities between the ages of 8 to 12 years, were randomly selected and matched by age, gender and home language. The Bruininks-Oseretsky Test of Motor Proficiency was used to assess the motor proficiency of the subjects. An independent t-test indicated that the children without learning disabilities performed significantly better ($p<0.01$) on all eight variables. Effect sizes for the significant comparisons ranged between 0.60 and 2.74, which can be interpreted as moderate to large. In order of magnitude, as expressed by percentage, the children without learning disabilities performed better as follows: balance (147.7%), strength (102.9%), upper limb speed and dexterity (81.4%), visual-motor control (36.4%), bilateral coordination (35.2%), upper limb coordination (34.6%), running speed and agility (33.3%) and response speed (23.8%). A physical education programme for children with learning disabilities should give special attention to activities that would enhance the development of these variables.

Key words: Motor proficiency; Learning disabilities; Physical education.

INTRODUCTION

The impact of learning disabilities on the academic, social and psychomotor performance of children has been a source of concern for parents and educators for several decades (Beyer, 1999). To be able to read, write and perform with adequate success at school, all children need certain abilities. These abilities include motor, sensory motor, auditory motor, visual perceptual, auditory perceptual, language receptive and language expressive abilities (Engelbrecht, 2000). The motor ability of a child is perhaps the most visible of these abilities. Should a child of normal intelligence fail to demonstrate the same academic competencies as do the majority of his/her peers, it is believed that there is a dysfunction in one or more of the above areas. Remedial or special education is recommended when a child has significantly greater difficulties in learning than most children his/her age, or a child has a disability that either prevents or hinders him/her from making use of the educational facilities generally provided in school.

A learning disability is defined as a disorder in one or more of the basic psychological processes involved in understanding or using language, spoken or written, which may manifest itself in the imperfect ability to listen, think, speak, write, spell or perform mathematical calculations (Auxter *et al*., 1993). Teaching children with learning disabilities will be different in some ways than working with children who learn spontaneously and have all body systems intact and functioning in predictable patterns. In South Africa, children who have been identified and professionally diagnosed with learning disabilities can be placed in remedial schools such as the Zululand Remedial School situated in KwaZulu/Natal, South Africa (South African Association for Learning Disabilities, 2000).

Children with both learning disabilities and dysfunctions in motor ability are at risk for a significant decline in self-esteem. According to Levine (2000), children crave motor gratification as they grow up. Consequently, children are apt to be highly conscious of how they are judged by others. They need to feel that their bodies are somewhat effective in space. Such feelings contribute substantially to the development of a positive body image and self-concept. It is disheartening to have physical/motor inabilities that perpetually bring embarrassment and incite ridicule or criticism. Many studies have shown that the best way to help children achieve a positive self-concept and enhance their learning ability is to train their motor skills, starting in infancy and continuing throughout life (Burton, 1987; Sherrill & Montelione, 1990; Auxter *et al*., 1993; Sherrill, 1993). A lack of physical activity can also have a negative impact on motor development because participation in frequent physical activities is also important for the development of motor skills (Thomas, 1984; Saakslanti *et al*., 1999). Development of motor skills plays an important role in the overall development of school readiness (Pienaar, 1994; Gallahue & Ozmun, 1998).

Although all children with learning disabilities do not display motor problems, many do display such problems (Bruininks & Bruininks, 1977; Sherrill & Pyfer, 1985; Schaffer *et al*., 1989; Miyahara *et al*., 1995). Research done by Haubenstricker (1982) established that children with learning disabilities are weaker than children without learning disabilities on tasks of bilateral co-ordination. Miyahara *et al*. (1995) contended that many children with learning disabilities display visual and spatial motor difficulties and can thus be considered "clumsy". Lazarus (1990) stated that children with learning disabilities showed more overflow movement, had difficult with visual-motor tasks, and were inferior to children without learning disabilities in spatial orientation and tasks requiring motor planning and sequencing of motor acts.

Physical education has a major role to play in the development of children with and without learning disabilities. Physical education should be an integral part of the total education of any child as it is closely allied to other creative expressions and learning experiences, as well as skill acquisitions. One of the fundamental goals of the physical education programme should be to prepare students for the challenges of the 21st century by providing opportunities to attain the skills and knowledge needed to be physically active as part of a healthy lifestyle. Children should become competent in movement forms, motor skills, and social skills and learn to enjoy physical activity while not compromising safety.

Physical education is an important part of the school curriculum. It is not merely "play", "letting off steam" or an activity that is divorced from the other learning experiences in schools. However, to achieve its rightful position as one of the basics, physical education

must be seen in its relationship to the total curriculum. Classroom teachers and physical educators must work together, as both have much to contribute to a goal that cannot be accomplished alone. This working relationship can develop physical education activities that correlate with other learning experiences. The rewards for this effort can be found in the satisfaction of helping children develop their movement and learning abilities to their fullest extent (Hoffman *et al*., 1981). Sherrill (1993) indicates that children with learning disabilities need a different content in physical education than that which exists in most traditional physical education settings.

PURPOSE OF THE STUDY

This study aimed to determine if children with learning disabilities showed any significant differences in motor proficiency from children without learning disabilities, that would warrant special attention when addressing their physical education movement needs.

METHOD AND PROCEDURES

The most accurate method of data collection in a study such as this appears to be direct personal contact between the researcher and the subject (Vincent, 1995). In cognisance of this position, it was decided to confine this study to one local school catering for the special needs of children with learning disabilities, and one local school that did not include children with learning disabilities.

Participants

Sixty children with learning disabilities and 60 children without learning disabilities between the ages of eight to 12 years were randomly selected and matched by age, gender and home language.

Procedure

The researcher approached the principals from the "remedial school" and the so-called ordinary primary school located in Empangeni, KwaZulu/Natal. The research project was fully explained, including the purpose, research protocol and use of results. The Principal and Governing Body Chairman of each school gave written approval of the project to the researcher. Written approval was also received from the Department of Education, the Research Committee of the University of Zululand and the Ethics Committee of the Faculty of Science, University of Zululand. A letter was sent to the parents, which explained the nature and procedures of the study and procured parental and subject approval in an informed consent document.

In this study postgraduate students were used to administer the BOTMP long form. These testers first completed a graduate level Adapted Physical Education training course presented by the researcher who was fully proficient in the BOTMP long form test administration. The testing was done over three days and was conducted in the Remedial School hall. This venue was chosen, as it was free from noise and other distractions and fully complied with the logistical requirements of the BOTMP test.

On arrival at the hall, subjects were seated at pre-placed desks and the hall doors closed. A "Testing - Please Do Not Disturb" sign was placed on the door. During the testing session all children wore their physical education uniforms, consisting of T-shirt, shorts and training

shoes. The children where handed a BOTMP individual score sheet. The researcher orally explained the testing procedures to the children. The children were requested to carry the sheet from test station to test station, where the testers at each sub-test station carried out the relevant tests and recorded the children's score on the score sheet. Only one subject and the tester were at a sub station at one time. During the actual testing, each item was demonstrated and where doubt existed, a trial attempt was given to ensure that the children knew what was required of them. A thorough check was made to ensure that the children were free of any condition that could influence the results of the tests and thus invalidate the testing programme. Apparatus used during testing was carefully checked and rechecked before the testing sessions.

Measures

The Bruininks-Oseretsky Test of Motor Proficiency (BOTMP) (Bruininks, 1978) was used to assess the motor proficiency of the subjects. The BOTMP has a long and short form. Verderber and Payne (1987) suggest that the long form provides a more reliable measure of motor deficiencies than the short form, especially for children over 10 years of age. For the purpose of this study the long form was used. Adapted physical education researchers have accepted the face validity of the long form based on the reliability of 0.80 to 0.94 (Sherrill, 1993). Full details for the administration and scoring appears in the Examiner's Manual. The BOTMP consists of eight components which are further divided into 45 sub tests (see Table 1). The BOTMP is widely used in Adapted Physical Education (Parker & Bradshaw, 1987; Miles *et al*., 1988) and is useful in assessing the motor proficiency of children with disabilities (Haubenstricker *et al*., 1981; Stengel, 1991). It is considered to be fun and interesting to children (Roswal *et al*., 1984), and the instructions and trials are useful in gauging the individual's understanding of the motor task to be assessed (Connolly & Michael, 1986). The standardised procedures permit replication and comparison between and within individuals in the study.

TABLE 1. **SUBTEST AND ITEMS FOR THE BOTMP (EXAMINER'S MANUAL, 1978)**

Subtest	Item
STATION 1: Subtest 1: Running Speed and Agility	Running Speed and Agility
STATION 2: Subtest 2: Balance	1. Standing on preferred leg on floor 2. Standing on preferred leg on balance beam 3. Standing on preferred leg on balance beam with eyes closed 4. Walking forward on walking line 5. Walking forward on balance beam 6. Walking forward heel-to-toe on walking line 7. Walking forward heel-to-toe on balance beam 8. Stepping over response speed stick on balance beam

Subtest	Item

STATION 3: Subtest 3: Bilateral coordination	1. Tapping feet alternately with making circles with fingers 2. Foot and finger on same side synchronized 3. Tapping foot and finger on opposite side synchronized 4. Jumping in place - leg and arm on same side synchronized 5. Jumping in place - leg and arm on opposite side synchronized 6. Jumping up and clapping hands 7. Jumping up and touching heels with hands 8. Drawing lines and cross simultaneously
STATION 4: Subtest 4: Strength	1. Standing broad jump 2. Sit-ups 3. Knee or full push-up
STATION 5: Subtest 5: Upper limb coordination	1. Bouncing a ball and catching it with both hands 2. Bouncing a ball and catching it with preferred hand 3. Catching a tossed ball with both hands 4. Catching a tossed ball with preferred hand 5. Throwing a ball at a target with preferred hand 6. Touching a swinging ball with preferred hand 7. Touching nose with index finger - eyes closed 8. Touching thumb to fingertips - eyes closed 9. Pivoting thumb and index finger
STATION 6: Subtest 6: Response Speed	1. Response speed
STATION 7: Subtest 7: Visual-motor control	1. Cutting out a circle with preferred hand 2. Drawing a line through a crooked path with preferred hand 3. Drawing a line through a straight path with preferred hand 4. Drawing a line through a curved path with preferred hand 5. Copying a circle with preferred hand 6. Copying a triangle with preferred hand 7. Copying a horizontal diamond with preferred hand 8. Copying a overlapping pencils with preferred hand
STATION 8: Subtest 8: Upper-limb Speed and Dexterity	1. Placing pennies in a box with preferred hand 2. Placing pennies in two boxes with both hands 3. Sorting shape cards with preferred hand 4 Stringing beads with preferred hand 5. Displacing pegs with preferred hand 6 Drawing vertical lines with preferred hand 7. Making dots in circles with preferred hand 8. Making dots with preferred hand

RESULTS

Means and standard deviations for each of the eight components of the BOTMP are presented in Table 2. Also presented in Table 2 are the t-values for differences between means and the

effect size values for each of the statistically significant comparisons.

TABLE 2. **MEANS, STANDARD DEVIATIONS AND T VALUES OF THE BOTMP SUB-TEST ITEMS FOR LEARNING DISABLED AND MAINSTREAM CHILDREN**

Subtest	**Learning disabled (N=60)**	**Mainstream (N=60)**	**Learning disabled vs Mainstream**		
	Mean ± Standard deviation	**Mean ± Standard deviation**	**t- values**	**Omega squared (ω^2)**	**Percentage difference**
Running speed and agility	10.5 ± 6.0	14.0 ± 4.6	3.4	0.76	33.3%
Balance	19.7 ± 2.6	48.8 ±10.3	*11.9	2.74	147.7%
Bilateral co-ordination	9.1 ± 5.5	12.3 ± 5.3	3.1	0.60	35.2%
Strength	24.2 ± 9.2	49.1 ± 9.4	*15.2	2.64	102.9%
Upper limb co-ordination	10.4 ± 6.5	14.0 ± 4.5	3.0	0.80	34.6%
Response speed	13.0 ± 5.6	16.1 ± 4.8	3.1	0.64	23.8%
Visual-motor control	11.8 ± 5.7	16.1 ± 3.9	4.6	1.10	36.4%
Upper limb speed and dexterity	26.9 ± 8.5	48.8 ± 9.5	*16.8	2.30	81.4%

***** Significance at $p<0.01$

An independent t-test indicated that the mainstream children performed significantly better ($p<0.01$) in all eight variables. Effect sizes for the significant comparisons ranged between 0.60 and 2.74, which can be interpreted as moderate to large. In order of magnitude, as expressed by percentage, the children without learning disabilities performed better as follows: balance (147.7%), strength (102.9%), upper limb speed and dexterity (81.4%), visual-motor control (36.4%), bilateral co-ordination (35.2%), upper limb co-ordination (34.6%), running speed and agility (33.3%) and response speed (23.8%).

DISCUSSION

The purpose of this study was to determine if there were differences in motor proficiency scores of children with learning disabilities and children from mainstream that warranted different approaches for addressing the physical education movement needs. From the results it is clear that there are significant differences in motor abilities between the two groups. A physical education programme for children with learning disabilities should give special attention to activities that would enhance the development of these motor proficiency

variables that are most lacking in these children. Therefore activities should be carefully selected and adapted to cater for the special needs of children with learning disabilities. Further research in this regard is recommended.

The results of the study agreed with other findings that children with LD demonstrate poorer motor proficiency than children without LD (Haubenstricker, 1982; Hefley & Gorman, 1986; Korkman & Pesonen, 1994; Miyahara *et al*., 1995; Harvey & Reid, 1997).

The mainstream children performed significantly better than the children with LD on all eight components of the test battery. The poorer performance by children with LD support research findings that performance in fine motor and timed tasks of motor co-ordination are significantly inferior in participants with LD when compared to controls without disabilities (Hefley & Gorman, 1986; Korkman & Pesonen, 1994).

The results also support findings that tasks of bilateral co-ordination, balance and upper limb speed are weaker in children with LD than children without LD (Haubenstricker, 1982; Harvey & Reid, 1997). Miyahara *et al*. (1995) contended that many children with LD display visual and spatial motor difficulties and can thus be considered "Clumsy". Lazarus (1990) stated that children with LD showed more overflow movement, had difficult with visual-motor tasks, and were inferior to children without LD in spatial orientation and tasks requiring motor planning and sequencing of motor acts.

In this study, balance, as measured by the BOTMP, emerged as a characteristic area of weakness for the children with LD. The balancing problems experienced by the children with LD were evident in the low scores obtained by them. Balancing is a complex activity that involves integration of the perceptual and motor systems, an area that children with LD have noted problems with (Burton, 1987). As balance is integral to skilled behaviour (Lazarus, 1990), this level of proficiency is of concern because it impacts further on the classroom performance of the children with LD.

In research studies by Hefley and Gorman (1986) and Kerr and Hughes (1987), children with LD are documented as having deficits in response speed and bilateral co-ordination, but when treated through the means of interventions these deficits improve significantly. Cermak *et al*. (1990) also established that male adolescents with learning disabilities perform poorer than males without learning disabilities on tasks of bilateral co-ordination.

Although significantly poorer on balance, the children with LD showed that on the subtests of running, co-ordination and response speed they could attain stronger levels of proficiency. The lower diffidence in proficiency scores for response speed, co-ordination and running could be a result of the type of games that the children played, which consisted mainly of running games, kicking and catching of balls.

The lower level of strength showed by the children with LD is consistent with the low muscle tone reported in these children (Connolly & Micheal, 1986; Beyer, 1999).

Researchers have noted that concentration ability and information processing are significantly pooper in some children with LD (Schaffer *et al*., 1989; Harvey & Reid, 1997). This interpretation appears to be supported in the present study. In all of the subtests in which the scores of the children with LD were significantly lower, a high degree of concentration and

motor planning was required.

CONCLUSION

It is important to recognise the motor proficiency differences between children with learning disabilities and children without learning disabilities, and to implement special intervention through the medium of physical education programmes in special schools. The importance of developing motor skills of children goes beyond "opening the door" on the multiple benefits derived from participation in physical activity programmes. It is essential if children with learning disabilities are to achieve their potential level of functional autonomy.

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A MARKET ANALYSIS OF VISITORS TO THE PRETORIA NATIONAL ZOO

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ABSTRACT

The Pretoria National Zoo is one of the top tourist attractions in South Africa and attracts thousands of visitors each year. Management strives towards improved

education, recreation, conservation and preservation in the services delivered. In order to be able to develop the right product for the right markets as well as to promote this facility as a top tourist attraction, it is important to know who is making use of the product. The literature study showed that in order to use marketing budgets efficiently, it is important to be focused on attracting the right market. Competition in the tourism and leisure industry is constantly increasing and tourists can choose from a variety of attractions. In order to ensure that the zoo stays ahead of other attractions extensive research is necessary to determine the exact profile of the visitor to the zoo. The latter was also the aim of this research and in order to achieve this, a survey was conducted in which 280 people participated. The results of the survey was used to compile a profile of the visitor to the Pretoria National Zoo that will assist in future development- and marketing strategies and enable sustainable development. The article will be organised in the following manner: firstly the introduction and problem statement, which focus on, the literature study, followed by the methodology and the results of the empirical research. From the results a profile will be compiled of the typical visitor to the Pretoria National Zoo after which conclusions and recommendations are made.

Key words: Market segmentation; Marketing; Tourism marketing; Market profile; Pretoria National Zoo.

INTRODUCTION

Pretoria National Zoo is situated in the heart of Pretoria and was established in 1899 by the director of the Transvaal Museum, Dr. J.W.B. Gunning (Muller *et al*., 1995). Today, 104 years later, Pretoria National Zoo ranks as one of the top zoos in the world (Saayman, 2001). More than 7 000 individual mammals, birds, reptiles, fish and amphibians can be seen on the 80 hectares of the zoo. The main functions of the zoo are education, recreation, conservation and research (Saayman, 2001). The zoo also has sub-units in Potgietersrus and Lichtenburg, as well as a new development with Emerald Safaris Casinos at Vanderbijlpark. The visitor numbers have shown a steady increase from 428 624 visitors in 1999 to 526 219 in 2002.

In order to sustain this growth the Pretoria National Zoo needs to visualise the new challenges of ever changing tourism and leisure markets. The former must strive to change and improve its services and facilities according to the needs and expectations of its visitors (Saayman, 2001). The tourist and leisure market is becoming more specialised and professional, particularly in the sphere of communication and information technology. Needs are changing and becoming more varied and sophisticated, because tourists (consumers) are becoming more educated and aware of what they want (Poon, 1993).

The aim of this study is therefore to determine the profile of a typical visitor to the Pretoria National Zoo. This will assist marketers to develop current and future marketing strategies that will ensure continued growth and enable them in using the marketing budget effectively. The results of the profile will also help the management of the Pretoria National Zoo to understand the needs of their visitors, thereby ensuring the right product reaches the right market. The article will be organised in the following manner: firstly the introduction and problem statement, which focus on, the literature study, followed by the methodology and the results of the empirical research. From the results a profile will be compiled of the typical visitor to the Pretoria National Zoo, after which conclusions and recommendations are made.

LITERATURE REVIEW

Compiling a profile of its customers (visitors) will help the Pretoria National Zoo in segmenting the market in order to better understand visitors' needs. Hu (1996) says that one of the most challenging and important issues of tourism and leisure marketing is to understand the tourists' (visitors) travel and leisure patterns and to know where they come from. The latter enables the marketer to match a product or service to the needs of the target market more closely. In this way a stronger competitive position can be achieved (Hooley & Saunders, 1993). Market segmentation has in recent years become an element of considerable importance in the marketing strategy of companies (Ahmed *et al*., 1998; Mackay & Fesenmaier, 1998). This is primarily because the increasingly exact and segmented demand, as well as the intensified competition in this type of activity requires services to adapt to its specific needs.

The need of most service companies to use their limited resources efficiently is also an important motivation for market segmentation (Diaz-Martin *et al*., 2000). It is a fact that customers respond better to offerings that are tailored and aimed directly at them rather than to the broader public (Trigg, 1995). According to Kara and Kaynak (as cited by Diaz-Martin *et al*., 2000) service companies should identify groups of customers with homogeneous characteristics and behaviour patterns in order to satisfy the needs of their customers more successfully and to reach them in the most effective and efficient way. These companies should try to adapt their products and services as much as possible to the unique needs and desires of the segment members. Bloom (2002) states that inadequate market segmentation and clustering, together with a limited understanding of the characteristics of a segment profile could cause an enterprise to either miss a strategic market opportunity or not cash in on a tactical campaign.

Tourism and leisure markets vary in the extent of their homogeneity. When deciding which variables to use to segment markets, the marketer's goal should be to identify market segments that differ from one another in the ways they respond to a particular marketing mix (Kinnear *et al*., 1995). Market segmentation, therefore is the process of dividing a total market into segments consisting of people with similar product needs. A market segment is therefore a group of individuals, tourists or organisations that share one or more similar characteristic because they have relatively similar product needs (Saayman, 2001). It is

evaluated on a number of criteria, but the essence of the approach is to identify the most relevant characteristics of visitors seeking particular sets of benefits from their tourism and leisure purchases (Laws, 1997; Pride & Ferrell, 1987). In this process consumer behaviour plays an important role.

Consumer behaviour can be described as the mental, emotional and physical activities that people engage in when selecting, purchasing, using and disposing of a product and service so as to satisfy needs and desires (Wilkie, 1994). Behaviour in tourism and leisure is often a result of perceptions (Linquist, 1974-1975, as cited in Leisen (2001)). The tourist's choice of a given vacation-destination therefore depends largely on the favourableness of his or her image of the destination (Mayo, 1973; Hunt, 1975; Goodrich, 1978; Mayo & Jarvis, 1981; Woodside & Lysonski, 1989; Chon, 1991; Baloglu & McCleary, 1999). All consumers experience a similar decision-making process when selecting destinations, attractions and other tourism and leisure products. Therefore, the identification of specific market

characteristics and behaviour will allow the management of Pretoria National Zoo to intervene in this process in a way that will increase the probability of desired marketing and management outcomes (Weaver & Oppermann, 2000).

Based on the above it has become important for the Pretoria National Zoo to profile its market accurately and to understand its diversity. This will enable the Zoo to deliver a better service to specific markets. It is no longer possible to serve a total market and it is therefore necessary to segment markets and concentrate on a single segment or a number of segments (Saayman, 2001; Kinnear *et al*., 1995).

METHOD OF RESEARCH

The methods used in this research were twofold namely a literature study and a survey. The literature study focused on similar research (Muller, 1991; Muller *et al*., 1995; Oh & Jeong, 1996; Wight, 1996; Bowen, 1998) as well as marketing literature in order to compile a survey-questionnaire. Research by Kotler *et al*. (1999) and Saayman (2001), gave insight on what aspects are relevant in order to develop a profile of visitors to the zoo.

The survey was conducted at the Pretoria National Zoo by means of questionnaires during April 2001. The target population included visitors who visited the zoo during two weekends in April. The month of April was chosen because it is the month that attracts the most visitors (Pretoria National Zoo, 2000). A random sampling method was used in order to determine the number of visitors who should form part of the survey. As a result 280 people were interviewed by means of a structured questionnaire. A pilot study of 10 questionnaires was conducted in February in order to make sure that visitors understood the questions. The pilot study included people who has previously visited the Pretoria National Zoo. The questionnaire dealt with demographic, socio-economic, geographic and psychographic information, where respondents had to rate aspects on a 5 point Likert scale, where 1 equals less important and 5 equals very important. The statistical analysis was done by Statistical Services at the Potchefstroom University for Christian Higher Education and interpretation and discussion were done by the authors.

For the purpose of this article certain aspects of the market segmentation model most frequently used in tourism research was applied (Proctor, 1996; Nickels & Wood, 1997;

Kotler *et al*., 1999; Pender, 1999; Saayman, 2001). This segmentation model is used in profiling a specific market according to:

- Demographic information for example age, gender, income, marital status, education and nationality.
- Socio-economic information for example spending patterns.
- Psychographic information for example reasons for attending and most effective marketing tools.
- Geographic information for example where visitors came from.

RESULTS

From the survey the following results were obtained:

TABLE 1. **DEMOGRAPHIC PROFILE**

GENDER	58%	Female	42%	Male		
AGE	32%	Under 25	43%	26-35 years	17%	36-45 years
LANGUAGE	47%	Afrikaans	29%	English	24%	African
MARITAL STATUS	47%	Married	42%	Single		
NUMBER OF CHILDREN	42%	One child				
DEPENDENT CHILDREN	42%	One child	28%	None		
SIZE OF THE GROUP	32%	Group of friends	29%	Two or more of a family		

Table 1 shows that 47% of the respondents were Afrikaans speaking, 29% English and 24% spoke an African language. The respondents comprised 58% females and 42% males. There was only a 6% difference between single (42%) and married (47%) visitors. The reason for this can be explained by looking at the age distribution, which shows a similar trend. The single largest group of visitors (42%) have one child followed by 28% who do not have dependent children. Visitors travel mostly in a group of friends (32%) or as a family of two or more (29%).

TABLE 2. **SOCIO-ECONOMIC PROFILE**

AVERAGE MONTHLY INCOME		R5 359-00
EDUCATION LEVEL	44%	Matric
	33%	Diploma
SPENDING PATTERNS:		
Food & Drink		R80-25
Souvenirs & Gifts		R49-00
Transport to the zoo		R43-13
Entrance fee		R60-00
Other expenditures		R 51-00
TOTAL		R238-38

Table 2 indicates that visitors to the zoo have an average monthly income of R5 359-00 where 44% have matric and 33% a diploma as their highest qualification. Visitors spent an average of R238-38 per visit on the various categories indicated in Table 2. Food and drinks generated the most income for the Pretoria National Zoo followed by entrance fees.

TABLE 3. **PSYCHOGRAPHIC PROFILE**

PERSONALITY TYPE						
CONSERVATIVE			Primarily home and family orientated			
PREFERRED LEISURE ACTIVITIES			94%	Travel		
			87%	Reading		
			92%	Game viewing		
BUYING BEHAVIOUR						
DECISION TO VISIT	64%	Spontaneous	20%	Less than a month		

REASONS FOR VISITING	42%	To relax	46%	Spend time with someone special	40%	For family recreation
	38%	For the benefit of the children	35%	To walk around the zoo		
REPEAT VISITORS	42%	Return visitors (1-2x) per year	34%	First time visitor	24%	Three of more times
RECOMMEND THE PRODUCT	99%	Yes	1%	No		
MEDIA USAGE						
Magazines	28%	Health & fitness	26%	Lifestyle	15%	Sports
Newspaper	24%	Beeld	17%	Sunday Independent	17%	Sowetan
	16%	Rapport				
Television & Radio	36%	Wildlife	34%	News and current affairs		
Internet	35%	Never used	29%	Use regularly	18%	Use it daily

According to Table 3 visitors view home-based activities as very important and follow a more conservative lifestyle. They prefer travelling (94%), game viewing (93%) and reading (87%) as leisure activities. The decision to visit the zoo is spontaneous (64%).

The reason for visiting is mainly to spend time with someone special (46%), to relax (42%) or for family recreation (40%). Respondents indicated that they visited the zoo at least 1-2 times per year (42%) although 34% were first time visitors and 24% have visited the zoo three times or more on 2000/2001. The majority (99%) indicated that they would recommend the zoo to others. This is important from a marketing perspective.

With regard to magazines 28% of the visitors read health and fitness magazines, 26% lifestyle- and 15% sports magazines. Respondents also indicated that with regard to newspapers, 24% indicated they read *Beeld*, 17% *Sunday Independent* and *Sowetan* respectively and 16% *Rapport.*

Preferred television and radio programmes include wildlife programmes (36%) and current affairs (34%). Respondents indicated that 35% of the visitors have never used Internet before, 29% use it regularly and only 18% use it daily.

TABLE 4. **GEOGRAPHIC PROFILE**

PROVINCE	53%	Gauteng		
CITY	43%	Pretoria	10%	Johannesburg

Table 4 indicates most visitors (53%) come from Gauteng Province and specifically from the

cities of Pretoria (43%) and Johannesburg (10%).

PROFILE OF THE VISITOR

In order to make sense of the information obtained above, Plog (1976) recommended the personification of target groups, so that dull statistics are transposed into a "living" profile to which economists and marketers can respond more easily. Using the approach introduced by the Plog research group, the typical visitor to the Pretoria National Zoo is personified as Cindy van der Merwe. The following description of Cindy is based on information obtained from the survey.

"Cindy van der Merwe" is a typical visitor to the Pretoria National Zoo. She is 30 years old and Afrikaans-speaking. She lives in a house in Pretoria with her husband Mike van der Merwe, and they have one child. Cindy has a degree and she works for a company where she earns R5 359 per month. The family spends R238-38 per visit to the zoo, which they visit twice a year. The decision to visit the zoo is spontaneous and initiated by her. The reason for visiting is to relax and spend time with Mike and their child.

Cindy enjoys reading *Beeld* (a newspaper) during the week and *Rapport* on Sundays. She prefers lifestyle, health and fitness and sports magazines. Her leisure time is spent travelling, visiting game parks and reading. When time allows, she watches wildlife programmes, news and current affairs programmes on television. When asked about her thoughts on the zoo, she replied that all her expectations had been met and that she would recommend a visit to the zoo to friends and family.

According to Slabbert (2002) the information obtained from this research identified specific target markets. Once the target market has been identified marketing strategies can be formulated which will include determining price, place (distribution), promotion and product (Park *et al*., 2002). The marketing strategy can be based on the current target market (Cindy van der Merwe) or a combination of potential or new markets (Wedel & Kamakura, 2002) as will be discussed in the next section.

CONCLUSIONS AND RECOMMENDATIONS

From this research various target markets can be identified. The one that represents the most visitors currently are portrayed by Cindy van der Merwe. The following clusters were also identified in the age category of under 25 years of age. Both males and females are single and either speaking Afrikaans, English or an African language. Their reason for visiting would be to spend time with someone special, and it might be their first visit to the Pretoria National Zoo. Based on this research their expectations were met and they would most probably return and tell others by means of word of mouth. A market that is showing great potential for future growth and could become a primary market are visitors 25–45 years of age both male and female and of African origin, married with at least one child. They read the *Sowetan* and *Sunday Independent* and are also happy with their experience at the zoo.

In conclusion one can identify more easily various markets or clusters of people in order to promote the zoo and what it has to offer easier. This approach will contribute to resources being used more effectively since the zoo is in competition with various other forms of entertainment. It all depends on the aims of the marketing department for if it was to introduce the zoo to first time visitors then these results show that they are successful as well as

maintaining existing markets. The results also clearly show various other clusters that can be pursued. They show too, how income generation can be increased in terms of the items on which visitors spend money. What needs to be further researched is the ideal price strategy for the various market segments which was not addressed by this research.

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THE IMPACT OF TOURIST AND TRAVEL ACTIVITIES ON FACETS OF PSYCHOLOGICAL WELL-BEING

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ABSTRACT

Tourism is a fast growing industry based on the facilitating of unique, positive experiences for tourists. A fundamental perception, which is that going on holiday will enable people to satisfy their needs to rest and relax, exists. In a literature analysis it was determined that there is a definite link between leisure activities and improved psychological well-being, but the relationship between specific tourist and

travel activities and improved psychological well-being has not yet been researched. There is also evidence that the holiday experience may not always foster happiness, satisfaction and relaxation, causing what is commonly known as the 'holiday syndrome'. One of the outcomes of this research showed that up to 30% of the people going on pre-organised tours experienced a clear non-positive impact (not affected or negative impact) on their psychological well-being. Due to the importance of knowing why there are a significant number of tourists who return home feeling unaffected or worse after the holiday tours, possible reasons for the decrease in their well-being were explored. Main stress factors on the tours were identified as too tight time schedules, too little personal time and too much driving.

Key words*:* Tourism; Tourist and travel activity; Psychological well-being; Happiness.

INTRODUCTION

In many countries around the world, tourism is a fast growing industry that contributes to economies by generating income in creating jobs and business opportunities (Sorensen, 1997). Recent statistics show that tourism accounts for 11% of the gross world product, and on the African continent alone it provides jobs for approximately 16.5 million people (Graham, 2002; Pinnock, 2002; South African Tourism, 2002). People visit holiday destinations to have a unique experience and therefore the main aim of the tourism industry and the various service providers is to create an environment in which to facilitate the optimal positive experience for the tourists. It is commonly perceived that holidays give people the chance to "switch off", do with their time what they want to, travel and see new places, make new friends, learn new things, experience a freedom from constraints and return home with happy memories (Krippendorf, 1987; Carmouche & Kelly, 1995). If service providers, for example tour operators or role players in the hospitality industry, succeed in creating an environment where tourists can have a positive experience, it ensures future returns and more clients. Apart from this, a positive image is built for the specific company or business and also for the country of destination.

PROBLEM STATEMENT

The constant pursuit of happiness and the assumption that embarking on holiday activities will enhance people's ability to cope with life are some of the most fundamental reasons for people going on holiday (Ragheb & Beard, 1983; Iso-Ahola, 1984; Enzensberger, 1996; Anon., 1999). However, there are indications that not all people experience the assumed benefits of holidays on their overall well-being. The few studies that explore the specific impacts of tourist and travel activities on the psychological well-being (PWB) of travellers question the link between tourist and travel activities and improved PWB (Krippendorf, 1987; Milman, 1998; Woods & Dovel, 1998; Bentley & Page, 2001). There is even evidence that people suffer physically from "holiday syndrome", with symptoms such as sleeplessness, anxiety and exhaustion (Van der Merwe, 2002). It has been reported that some people even need medical help to be able to function in their normal lives again (Anon., 1994; Halpern *et al*., 1994). With this being the most drastic evidence of the adverse effects of holidays, it can be reasonably assumed that holidays do not always provide the expected benefits for all people. This could result in tourists returning to their home countries unsatisfied, they spread the word that the destination is not what they expected it to be. This could harm the destination's image and result in fewer tourists returning. However, it is still unknown how many tourists do not have a total positive experience while on holiday, or what the specific reasons for a decrease in their happiness and satisfaction are. The main objective of this research is to determine

whether the tourist and travel activity, in the form of a pre-organised tour, can improve certain facets of PWB.

RESEARCH METHODOLOGY

Literature study

A literature study investigated various aspects of tourist motivation, as well as certain facets of PWB. The focus was on various motivational theories which could explain tourist behaviour, as well as on the relationship between PWB and tourism (Bradburn & Caplovitz, 1965; Howitt, 1991; Sorensen, 1997; Hermon & Hazler, 1999; Hudson & Gilbert, 2000). The outcome of the literature analysis showed that people engage in tourist and travel activities to satisfy physical and psychological needs – in particular the needs for rest and relaxation (Maslow, 1968; Crompton, 1979; Gray, 1980; Dann, 1981; Deci & Ryan, 2000). As a result of this, psychological well-being and its different dimensions and constructs were also researched. It was found that psychological well-being is a multi-dimensional, multi-faceted concept which could be viewed from different perspectives, and which can be measured in an objective or subjective way (Diener, 2000; Diener & Lucas, 2000; Rotter, 2000; Nell, 2001; Ryan & Deci, 2001; Wissing & Van Eeden, 2002). A subjective measuring was chosen for this study, and it became clear that subjective well-being (SWB) can be measured on two levels, namely an affective and a cognitive level, which entail the self-evaluation of a person about his or her feelings (also called emotional well-being or happiness) and satisfaction with life (Pavot & Diener, 1993). Since there are factors in everyday life which influence the way people think and feel about themselves, this was also investigated. Demographic factors such as age, marital status, occupation, culture, personality and environmental factors like leisure directly influence SWB, while other factors such as gender, level of education and income are more indirectly related to SWB (Argyle, 1996; Ross & Van Willigen, 1997; Diener *et al*., 1999).

The main assumption arising from the literature analysis is that people expect to feel better on a physical, emotional and intellectual level and to have better relationships with others after the holiday experience. They also expect to cope better with daily life (Krippendorf, 1987). However, the types of tourist and travel activities and the intensity of activity participation are of significant importance to improve overall well-being (Argyle, 1999).

Survey

A two-group pre-post test design was chosen to determine the impact of tourist and travel activities on facets of psychological well-being. The main reason for conducting a survey with an experimental group as well as with a control group was to determine whether there will be a significant difference in the level of well-being after the experimental group was subject to the holiday experience while the control group wasn't. It can be reasonably assumed that in a big enough control group, the increase and decrease in scores will be equal, resulting in no change in any of the final average scores. If this can be assumed, then the use of a control group is not necessary in studies of this nature, because the experimental group's results would then be compared to a control group that show no change in their well-being scores between the pre- and post testing. This is confirmed by the fact that in comparable studies and the only other study with this particular research question, no use of a control group was reported (Milman, 1998; Diener *et al*., 1999). For the purpose of this paper the focus will therefore be on the results from the experimental group.

The experimental group consisted of 43 international tourists from 13 different nationalities who visited South Africa on pre-organised tours of three to six days. Although it was an availability sample dependant on the season in which the survey was conducted (low season for tourism in South Africa), the group's representation is enhanced by the differences in demographics, tour schedule, route, tour guide, period of time and specific attractions en route.

Pre- and post testing procedures were used to collect data. The experimental group, engaging in various tours organised by South African tour operators, completed the pre-trip questionnaire on the first day of their holiday trip and the post-trip questionnaire on the last day of their trip. All the respondents were informed of the nature of the study and participated voluntarily. From a total of 180 questionnaires (90 pairs of pre- and post trip questionnaires) handed to the tour guides, 118 questionnaires were returned. In total 75 tourists responded, which is 83% of the possible number of respondents. From these 75 participants, a total of 43 people (57%) completed both questionnaires and these were used for demographical profiling and to elaborate on tourism-related questions. From the remaining 31 participants, 21 completed only the pre-trip questionnaire and 11 only the post-trip questionnaires. They were, however, excluded from the study, as the impact of the trip could only be determined by comparing the completed pairs of questionnaires. Also, in evaluating the psychological scales, not all the questionnaires of those who did complete both could be used, since some participants did not complete all the scales, or only filled in part of the scales.

Measuring Instruments

According to Pavot and Diener (1993), both the affective and cognitive levels of well-being should be measured to determine overall SWB, which is the main reason for using both affective and cognitive measuring instruments in this research. Three affective measuring scales are included in the research, namely the Memorial University of Newfoundland Scale of Happiness (MUNSH) from Kozma and Stones (1980), the Affectometer 2 (Kammann & Flett, 1983) and the Happiness Scale (Crooker & Near, 1998), while the Satisfaction with Life Scale (Diener *et al.*, 1985) is the cognitive measuring scale used. Two of the scales used in this study, the Affectometer 2 and the Satisfaction with Life Scale have already been tested for validity and reliability in both an international and a South African context (Diener *et al*., 1985; Pavot & Diener, 1993; Wissing & Van Eeden, 2002). The two other scales, the MUNSH and the Happiness scale were newly introduced into a South African context and were validated and tested for reliability in this study. Both these scales have been tested in international studies and with different populations, and various authors report a high reliability (Kozma & Stones, 1980; Kozma & Stones, 1983; Crooker & Near, 1998; Milman, 1998; Hermon & Hazler, 1999). In the data analysis, separate Cronbach's alpha values for each of the subscales in the AFM2 and the MUNSH were calculated and the standardised alpha value of 0.85 was accepted as the benchmark for a high reliability coefficient (SAS Institute, 1996; SAS Institute, 1999; Cooper, 1998; Trochim, 2002). Each scale is however discussed individually to explain the different properties.

The Affectometer 2 (AFM2) measures the balance between positive and negative feelings in recent experiences and according to the instructions of the scale, respondents have to evaluate their emotions of the past two weeks (Kammann *et al*., 1984; Nell, 2001). The AFM2 consists of 20 items which are divided into two subscales (10 positive and 10 negative statements).

The affective well-being of a person is predicted by the domination of positive affect over negative affect, calculated by the following formula: PNB (Positive-Negative Balance) = PA (positive affect) - NA (negative affect). A high PNB score reflects a domination of PA over NA, and indicates a high SWB; while a low score shows the opposite. Kammann and Flett (1983) report alpha-coefficients of between 0.88 and 0.93 and give indications of its validity after testing the scale several times. In the current research, the positive and negative affect subscales showed very high alpha-values of 0.89 and 0.81 respectively.

The Satisfaction with Life scale (SWLS) was developed by Diener and his colleagues (1985) to measure life satisfaction as a component of subjective well-being. They argue that the evaluation of life satisfaction is a judgemental process where a person evaluates his or her life circumstances, based on self-imposed criteria, and the degree to which the life conditions match the self-made standards determines whether a person will report high or low satisfaction (Pavot & Diener, 1993). The scale does not measure other facets of PWB. A high SWLS score of between 26 and 35 indicates a satisfied to extremely satisfied report, while a low score of between 5 and 14 indicates an extremely dissatisfied to dissatisfied report. Diener *et al*. (1985) report an alpha-reliability of 0.87 and a test-retest reliability of 0.82 over a two-month period and in this study a reliability coefficient of 0.90 was found.

In 1980, the Memorial University of Newfoundland Scale of Happiness was developed by Kozma and Stones to measure affective well-being in elderly people. The MUNSH is based on the Affect Balance Scale of Bradburn (1969) and only items that showed a high correlation with self-appraisal and avowed happiness ratings were included in the final scale. This scale is widely used in Canada and the USA in gerontological studies and studies concerned with the happiness of various populations. The MUNSH consists of 24-items, which are divided into four clusters of constructs, namely positive affect (five items), negative affect (five items), positive experience (seven items) and negative experience (seven items). Similar to the

AFM2, the balance is calculated according to the domination of positive affect (PA) over negative affect (NA). However, apart from the affect measuring items, positive (PE) and negative experiences (NE) are also measured. The total score of affective well-being is calculated with the following formula: (PA-NA)+(PE-NE)=LEVEL OF HAPPINESS. The psychometric properties of the MUNSH are very consistent across various age groups and it has proven to have a high internal consistency coefficient of 0.85 and test-retest coefficients of 0.70 (Kozma & Stones, 1980; Hermon & Hazler, 1999). The scale is perceived as a good measure for the affective component of PWB. In the current research, Cronbach Alpha-values were calculated for each of the separate clusters. The positive affect (PA) cluster of five items shows the lowest coefficient (0.68), while the negative affect (NA) cluster shows the highest coefficient with a value of 0.83. The positive experience (PE) and negative experience (NE) clusters show respectively reliability coefficients of 0.73 and 0.78. Considering the high alpha-values reported in various studies, and the easy administration of the MUNSH, this scale is included in the empirical survey.

The Happiness Scale is a single item which measures happiness with a 3 point scale in the form of a simple question: “Taken all together, how would you say things are these days – would you say that you are very happy, fairly happy or not too happy?” Respondents can mark whether they felt very happy, fairly happy or not too happy during the last few days and the possible score can range from 1 to 3, with 1 being an indication of a high level of happiness and 3 of a low level of happiness. Due to the fact that this scale contains only one item, no reliability values can be calculated. Thus, in the literature and also in this study, no reliability

values are given for this scale, but it is reported that the scale meets the criteria of measuring feeling (happiness) rather than cognitive evaluation and therefore can be used as a valid instrument (Crooker & Near, 1998).

In the literature, the calculation of SWB has usually been done according to singular scales (Kammann & Flett, 1983; Kozma & Stones, 1983; Diener *et al*., 1999). However, in using the various scales which separately measure the two components of SWB, the next formula is introduced to calculate a value for a total level of SWB: affective well-being + cognitive well-being = total subjective well-being. Thus, [(MUNSH+AFM)/2]+SWLS=TOTAL SWB.

RESULTS OF THE RESEARCH

Profile of respondents

It was found that the participants of short-term pre-organised tours in South Africa, as reflected by this study, mainly consist of elderly well-educated and affluent people, mostly women, from English-speaking countries. A demographic profile of the typical participant was created, which in this particular experimental group is a 53 years old, married British woman, with an average household income of 60 000 Euros per year, who holds an advanced degree and works in an academic environment.

Psychological results

The experimental group showed an overall increase in all the scales. In the affective scales, the various components of each scale (MUNSH, AFM2) showed small to moderate effects. The MUNSH score was in the pre-test 16.30, while in the post-test the mean total was 19.30.

In the Affectometer 2 (AFM2) results, the Positive/Negative Balance (PNB) showed an increase of 1.90. The group also indicated a higher level of happiness in the Happiness scale after the trip than before (1= very happy, 3= not too happy). On cognitive level, the group's post-trip score was 28.40, compared to the 27.30 in the pre-test.

TABLE 1. **EXPERIMENTAL GROUP: MEAN SCORES FOR ALL VARIABLES**

Experimental group						
Variable	**n**	**Pre Mean**	**Post Mean**	**Difference**	**Std deviation**	**d-value**
MUNSH PA	36	7.60	8.50	0.90	2.80	0.32*
MUNSH NA	36	0.86	0.64	-0.22	2.33	-0.09
MUNSH PE	36	11.47	12.61	1.14	1.97	0.58**
MUNSH NE	36	1.90	1.20	-0.70	1.85	-0.38*
MUNSH TOTAL	36	16.30	19.30	3.00	4.70	0.64**
SWLS	40	27.30	28.40	1.10	3.30	0.33*
AFM PA	36	37.90	39.20	1.30	4.40	0.30*
AFM NA	36	16.78	16.14	-0.64	4.67	-0.14
AFM PNB	36	21.10	23.00	1.90	6.67	0.28*

HS	41	1.40	1.30	-0.10	0.70	-0.14

* d = 0.2: small effect
** d = 0.5: moderate effect
*** d = 0.8: significant effect (Cohen, 1988)

The total Subjective well-being (SWB) for the respondents were calculated for only those respondents who filled in all three scales (n=33) used in the newly introduced formula (SWB=affective scales/2+cognitive scale). In Figure 1, one can conclude that the tourist and travel activity, in the form of pre-organised tours, had an overall positive impact on the tourists' well-being, as 79% of the respondents showed an increase in their total SWB scores. However, on average, almost 20% of the respondents showed a decrease or no change in their level of well-being (non-positive experience). When considered that a tourist will only buy a product again when it proved to be satisfying enough, tour operators could face a potential loss of one out of five potential customers on their pre-organised tours.

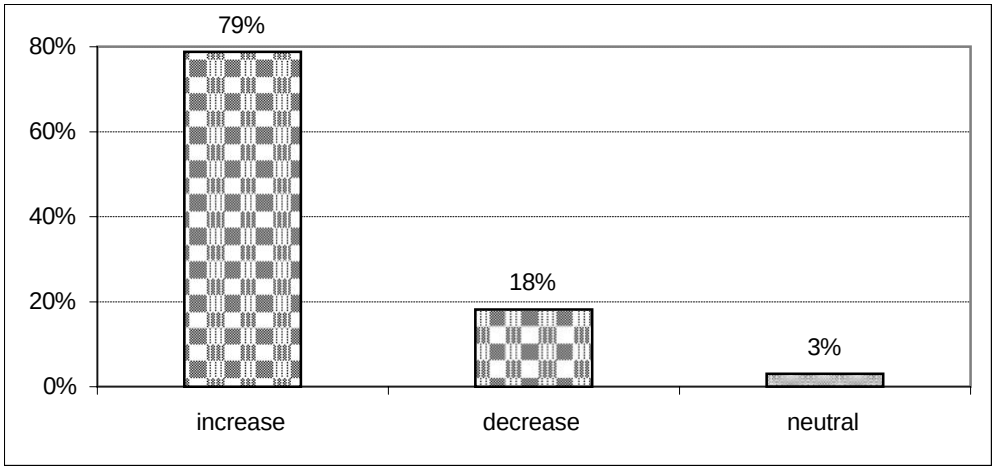

FIGURE 1. **CHANGES IN EXPERIMENTAL GROUP'S TOTAL SWB SCORES (N=33)**

Possible reasons for changes in well-being

For any destination where the tourism industry shows a big growth potential, the loss of 20% of unhappy, unsatisfied tourists should be prevented. The tourists in this study have, on average, travelled at least four times outside their home country, and had decided to go on this specific holiday trip more than four months in advance. Thus, the participants are not first-time travellers, and therefore one can assume that there must be specific problems to address if these people show a decrease in their well-being. When considered, demographic factors such as age, gender, nationality and culture may positively influence subjective well-being, while level of education, income, occupational and marital status have weaker relationships to increased SWB (Argyle, 1996; Ross & Van Willigen, 1997; Diener *et al*., 1999). Other factors explored indicated that the anticipated effects of holidays, in terms of activity participation, may lead to a positive change in well-being when the expectations are met. If this is not the case, the change in SWB will be negative. A list of possible stress factors was included in the post-trip questionnaire, and according to the majority of the respondents the main stress factor

was tight time schedules, a problem which can be linked to the full itineraries of pre-organised tours. In exploring the possibility of the itinerary differences between the tour groups as a further possible reason (meaning that one group had a more hectic tour than the others), it was found that those people who felt worse after the tour were distributed across all the groups.

CONCLUSION

It is considered important that the different role players in the tourism industry, such as tour operators, travel agents and other businesses that have contact with tourists, facilitate unique experiences to ensure that tourists return home happy and satisfied. This research showed, however, that between 10% and 30% of the tourists had a non-positive experience on affective and cognitive level, which resulted in a lower level of well-being after the holiday trip than before. Following a suggestion of Pavot and Diener (1993), a formula for the calculation of total SWB was introduced, and the results show that almost 20% of the respondents did not

experience a positive effect on their total SWB. It can thus be concluded that for certain people, a pre-organised tour as a holiday activity is not the best way to improve their psychological well-being.

Due to the significance of these findings for the tourism industry, potential explanations for the changes in the tourists' well-being were explored. The possible reasons that were investigated were expected activity participation versus real activity participation, the influence of travel companions, stress factors and differences between the various tour groups. It was seen that there is no relation between improved SWB and activity participation, since there were no differences between the level of well-being among respondents who participated in one out of the three activities they wanted to do, and those who participated in three out of the three activities they expected to do. Also, seeing that most travellers were accompanied by their spouse or partner and the fact that relationship problems featured very low on the stress factor ranking, this could not have been a significant predictor in the changes in SWB scores.

However, stress factors like tight time schedules, too little personal time and too much driving were indicated as significant problems by the whole experimental group, as well as by the separate tour groups. The conclusion made from these results is that, although pre-organised tours can foster a higher level of happiness and satisfaction in some people, a change in structure should be considered in order to address the influence of specific stress factors on tourists. A possible way of overcoming the problem of tourists not being satisfied or happy after their return from a tour, could be for tour operators to eliminate possible stress factors in advance, for example when a client selects a certain pre-organised tour. Customers are often influenced by economic factors such as availability and price when they go on holiday, and they are often not fully aware of their physical and psychological needs. The result could be a tour that does not match their specific needs. It therefore could be helpful to develop a pre-booking questionnaire to identify the main needs of the tourist, and then to assist the tourist in choosing the type of holiday that will meet his or her needs. Since most of the participants in this study were elderly people with an academic background, tour operators could consider shifting the balance from activity dominated itineraries to intellectual stimulating tours with less travelling involved. Also, tourists should realise what specific needs they have before they choose a holiday, and to consider which type of holiday will meet those needs best.

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A CASE FOR PHYSICAL EDUCATION/LIFE ORIENTATION: THE HEALTH OF A NATION

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ABSTRACT

The Worldwide Audit on the state and status of Physical Education (PE) in 1999 provides a clear picture of the threat under which the school subject seems to be on a worldwide scale. In the aftermath of the World Summit on PE, held in Berlin in 1999, it was deemed necessary to investigate the health status of populations and the current international and national trends regarding quality PE as a school subject. The research was conducted by means of a literature study in the field of health, education and PE. In the United States (US) the 1996 Surgeon General's report on physical activity and health as well as the 1997 subsequent recommendations from the Centres of Disease Control and Prevention (CDC) clearly made a plea for quality daily PE in school programmes to promote physically active and healthy lifestyles among the youth. However, childhood obesity is currently plaguing the US and although the US seems to be the world leader in obesity among the youth, Europe, Australia and Canada do not seem to lag behind. South Africa (SA) is also following the world trend with our youth becoming increasingly inactive and obese. A number of initiates were launched in various countries to provide quality PE programmes in schools, but in SA only sport is regarded as an important component for the overall development and upliftment of previously disadvantaged communities. To ensure favourable medal counts at elite sports competitions the limited funds available have to be allocated, bearing these national priorities in mind. Against this backdrop the sports delivery network finds it economically and politically 'profitable' to promote elite sport at the expense of PE and 'sport for all' community projects (Burnett & Hollander, 1999). Attempts were made to reinstate PE as a school subject with full status, but in the Revised National Curriculum Statement (Grades R-9) of 2002 it is one focus (physical development and movement) among four other foci in the Life Orientation (LO) learning area. The National Curriculum Statement for Grades 10-12 is still in draft form but it seems that PE will also be a focus (recreation and physical well-being) of LO. Taking the initiatives and health status of children worldwide into account, Hardman (2002) and Chernushenko (2003) wonder whether reports on quality PE programmes in schools and communities are not just lip service. The key word to serve

the mutual best interests of physical and health education as well as sport, is partnerships. The challenge for PE is to embrace initiatives at school, local community, national and international levels. These stakeholders need to stipulate detailed strategies to obtain short- and long-term objectives regarding health habits and physical activity patterns for the youth.

Key words: Health; Education; Physical Education; Life Orientation; Partnership.

INTRODUCTION, PROBLEM AND METHODOLOGY

It has been four years since the International Council for Sport Science and Physical Education (ICSSPE) initiated the Worldwide Audit on the state and status of Physical Education (PE). The process culminated in the World Summit on PE held Berlin in 1999 under the patronage of the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and the International Olympic Committee (IOC) co-sponsored by the World Health Organisation (WHO). The Berlin Agenda and its Call for Action by Ministers and Senior Officials responsible for Education and Sport was adopted by 250 delegates from 80 countries representing governments, inter-governmental and non-governmental organisations as well as academic institutions from all regions of the world (ICSSPE, 1999).

The Worldwide Audit on PE of 1999 clearly indicates that although good practices of PE does exist it appears "to be under threat in many countries in all continental regions of the world*"* (Hardman & Marshall, 2001: 32). Worldwide PE is being marginalised and undervalued by authorities, it is suffering from decreasing curriculum time allocation, budgetary controls with inadequate financial, material and personnel resources and have low subject status and esteem (Hardman & Marshall, 2001).

We clearly have an international problem with only one solution, namely international action (Hardman & Marshall, 2001). Although unified action on a world scale is necessary to enhance the situation of PE for all children the real test will be whether leaders of the PE profession are able to address the issue in their own countries and affect change (Doll-Tepper, 2001). She believes that by "Building on the current knowledge base, examples of good practice and the indisputable effects of quality Physical Education, co-ordinated action steps in the future can enhance the quality of life of children worldwide" (Doll-Tepper, 2001: 12).

All the delegates at the summit were unanimous on two fundamental issues:

1. Physical Education is a right for all children and a fundamental component of their development and education.
2. Strategies for action are needed to ensure that quality Physical Education is implemented and supported worldwide (Doll-Tepper, 2001: 11).

Several international policy statements have been declared with a focus on the case for PE whether it being access to quality PE, good health habits and well-being, lifelong active living, for enjoyment, fun and social interaction, as a tool for the development of sport (ICSSPE, 1999). In the light of all these international policy statements the question remains whether anything has changed for the good of PE?

The research problem focuses on the health status of learners worldwide and the current

international and national initiatives regarding quality PE as a school subject before and in the aftermath of the world summit on PE. The research was conducted by means of a literature study in the field of health, education and PE. The article can thus be typified as a review article.

HEALTH STATUS OF LEARNERS

International

Major progress was made during the 20th century regarding public health and medicine. However, health for all like sport for all remains out of the reach of the majority of the world's people (Darlison, 2001).

In 1999 Lambert and Siedentop reported on the implications of the United States (US) Surgeon General's Report (SGR) on physical activity and health of 1996 and the subsequent recommendation from the Centres for Disease Control and Prevention (CDC) in 1997 (Lambert, 1999; Siedentop, 1999). The SGR of 1996 established the scientific basis for a number of health risks of which inactivity and obesity were the main problems in the US (Siedentop, 1999; Feingold, 2002). This report made it clear that the health benefits of participation in physical activity are not limited to adults (Burgeson *et al*., 2003). It is obvious that positive attitudes and lifestyle behaviours have significant links to childhood years (Emmel, 2001; Hills, 2001; Feingold, 2002; Hardman, 2002; Schantz, 2002; Telama, 2002; Amusa & Toriola, 2003; Chernushenko, 2003; Stegeman, 2003). Notwithstanding all the numerous health consequences of obesity during childhood both fatness and elevated cardiovascular risk factors track through into adolescence and then adulthood (Hills, 2001; Kidd, 2003). It is estimated that 40 to 60% of obese school-aged children become obese adults (Hills, 2001).

Obesity, a serious health problem which causes heart attacks, strokes, diabetes, colon and breast cancer, is becoming a worldwide public health concern so much so that the World Health Organisation (WHO) has declared it as a global epidemic (Hills, 2001; Kidd, 2001; De Klerk, 2002; Engel, 2002; Kidd, 2003; Power, 2003). America seems to be the world leader when it comes to obesity, but Europe does not seem to lag far behind and although obesity is regarded as the rich people's disease of the developed world it is spreading to Third World countries (Gleick, 1999; Nash, 2003; Power, 2003). Table 1 provides the Body Mass Index (BMI) ≥30 in percentage of America and some European countries.

Obesity is not confined to adults although it is somewhat harder to measure in children. The WHO estimates that close to 10% of school children in some European countries are obese (Gleick, 1999). Nash (2003) purports that 20% of European children between the ages of five and 17 are either overweight or obese. Childhood obesity is currently plaguing the US (Feingold, 2002). It is estimated that more than 50% of the children in the US are not getting enough exercise for cardiovascular and health benefits and that 40% are obese (De Klerk, 2002; *Sunday Times*, 2002). In Australia 12-31% of children 6-12 years of age are at risk of overweight and a further 6-14% is obese (Emmel, 2001; Hills, 2001). Ten percent (10%) of Canadian children are classified as obese, while 30% are classified as overweight (Kidd, 2003). In Britain one in 10 children are classified as overweight (*Sunday Times*, 2002).

Modern technological developments gave rise to physically less active lifestyles and young people are less active due to the advancement of television, computer games and internet and

the decrease in safe outdoor playing grounds. The increased level of inactivity has devastating effects on the costs of health care and the general economy (Darlison, 2001; Hills, 2001; Feingold, 2002; Hardman, 2002). Obesity consumes 12%, or $100-billion a year, of all the

US health-care costs and is said to be responsible for 300 000 American deaths a year. In America obesity is recognised as a disease allowing patients to claim their treatment from their medical schemes (Spain, 2000; Feingold, 2001; Engel, 2002). In Germany $179 million is spent on obesity treatment each year while another $177 million is spent on the temporary disability of obese patients (Gleick, 1999).

TABLE 1. **BODY MASS INDEX ≥30 (in percentage)**

Country	Male	Female
America	20.0	25.0
Belgium	12.1	18.4
Czech Republic	16.3	20.2
Denmark	10.0	9.0
England	17.0	20.0
Finland	19.0	19.0
France	9.6	10.5
Germany	17.2	19.3
Italy	6.5	6.3
Netherlands	8.4	9.3
Russia	10.8	27.9
Scotland	15.9	17.3
Spain	11.5	15.2
Sweden	10.0	11.9

Source: Adapted from Gleick (1999: 54)

Neglecting physical inactivity can have devastating long-term costs such as more disease prone populations that are less productive, while the cost of treating illnesses, absences and delinquency will only grow. In Canada, as in other parts of the world, it seems that children only learn the knowledge and skills of active physical activity and sports in private clubs and expensive teams and leagues outside the public school. This means that the invaluable health, educational and cultural benefits of physical activity will only go to the well-to-do. The flight of parents with sports-conscious children to private schools only compounds the problem (Kidd, 2003).

National

In South Africa (SA) women are in danger of becoming as obese as their US counterparts. Half of South African women, of which 59% Black women, are overweight or obese (*Sunday Times*, 2002; Power, 2003). The *Sunday Times* (2002) reports that a study conducted among 5 000 children between the ages of 12 and 18 in the Western Cape found that 35% of the girls will be overweight by the time they reach 18. For the boys in this study it was about 10% across the board. Du Toit and Pienaar (2003) found that the prevalence of obesity (11.81%) among pre-school urban children corresponds with the reported 12% in SA and that these figures are higher or consistent with the reported prevalence of obesity among pre-school children in the United Kingdom, Canada and the US.

De Klerk (2002) found that the body weight of 288 boys and girls between the ages 11 to 13 in the Western Cape was more than what the norms suggest. The BMI of these children was clearly higher than those tested in a previous South African study (1990) in the same region. The triceps skin folds indicate very high deposits of subcutaneous fat (>20%) in 19% of the subjects and the boys and girls that were tested had a higher mean percentage body fat compared to another study of 1996. Of all the subjects 18.06% had a systolic blood pressure reading, indicating mild to moderate hypertension (130+), while 4.17% indicated severe hypertension. When comparing the systolic and diastolic blood pressure 19.44% of the subjects indicated mild to moderate hypertension and 5.56% indicated severe hypertension (De Klerk, 2002).

It is assumed that pre-pubescent children are naturally active. It was found that 30.52% of the boys and 36.57% of the girls aged 11-13 years were inactive and that a significant difference existed between the activity levels of the girls and the boys (De Klerk, 2002). A study consisting of 1 243 boys and girls between the ages of 13 to 17 years was conducted in some Western Cape high schools to determine youth lifestyle patterns. The results indicate that, irrespective of race, the actual participation in school sport (38%) and physical leisure activities (27%) are not considered to be important. White learners, as was expected, place a higher priority on participation in school sport than the other racial groups. It was also found that boys place a much higher premium on participation in school sport than girls (Van Deventer, 1999). Nel (1998; 2002) purports that 98% of the South African youth prefer passive to active leisure pursuits and that only 10% of the school going population participate in sport.

Insufficient gross motor development of the preschool child could be a different kind of health risk. If associated with obesity it could influence the child's overall development and well-being (Du Toit & Pienaar, 2003). A study which included 7 500 boys and girls found that 50% of all primary school learners experience motor problems which form the basis of academic learning and participation in sport (Nel, 1998; Nel, 2002). A study including 335 Grade 1, 2 and 3 learners found that 64% of them performed under average in motor skills such as kicking, catching, throwing, skipping and rope skipping. These activities form the base of sports participation and the development of writing and drawing skills (*Rapport*, 2003). The gravitational unsafe and unsure learner with weak bilateral integration of the vestibular systems find it difficult to handle the body, resulting in weak postural reactions that lead to poor movements as well as academic problems (Nel, 2002).

Rapport (2003) refers to this new modern generation as the Internet-generation. A number of articles in *Newsweek* of 25 August/1 September refer to these children as bionic kids (Guterl, 2003). Computers and television rule these children. Crime is another factor that impacts negatively on the health of children. For their own safety children are locked in their homes, and because both parents work these children cannot be transported to extra-mural sport activities at school and it is unsafe for them to walk. Their movement space becomes restricted and their world becomes technological rather than social that leads to a dysfunctional, closed social life (Guterl, 2003; *Rapport*, 2003). It was found that Grade 1 learners in SA cannot carry out tasks, solve simple problems, do not know how to work with other children and are emotionally very immature (Coetzee, 2002). Kalb (2003) believes that children who play imaginatively in their early years are more likely to think creatively and are better problem solvers as they grow older.

All the above-mentioned problems are actually First World problems and SA has a mixture of these children. Some children have to walk for kilometres per day to get to and from school in the rural areas. In the rural areas malnutrition is also a problem which leads to physical inactivity and similar consequences (*Rapport*, 2003).

Schools are in a favourable position to educate children regarding healthy lifestyles (De Klerk, 2002; Stegeman, 2003). Unfortunately the downscaling of PE and extra-curricular sport activities in SA is a reality due to the total lack of qualified PE specialists and limited funds available for PE at schools. The insufficient time allotted for PE has a negative impact on children's coronary risk profiles. On the other hand, the downscaling of teachers negatively affects the extra-curricular sports programmes at schools, while technology promotes sedentary behaviour in children (De Klerk, 2002).

INTERNATIONAL AND NATIONAL INITIATIVES

International

In the aftermath to the World Summit on PE a number of articles were published regarding developments in the field of physical education. These developments will be briefly discussed.

The European Physical Education Association (EUPEA) is presently investigating ways to develop the quality of PE in a more proactive way by seeking more extended and mutually productive associations between the sport and education sectors. Developing in-service networks to support teachers in the development of quality PE remains one of the key issues to be addressed (Fisher, 2001). In 2001 the Professional Development Board for Physical Education (PDB-PE) was established in England to assure the high quality of the Continuing Professional Development (CPD) of all PE teachers (Gilliver, 2003).

In 2000 in England a few secondary schools were designated as Specialist Sports Colleges. The goal was to give priority to PE and school sport on the school curriculum. As these schools are at the forefront of developments in PE and sport all of them will work with other schools to share their expertise, resources and good practice. This will ensure that locally a 'family of schools' are working together to provide training and support for teachers in secondary and primary schools and to maximise opportunities for children. By 2004 110 and by 2006 400 such schools/colleges will be established (Gilliver, 2003: 13).

This partnership model comprises of a Partnership Development Manager (PDM) who manages the local partnership, a School Sport Co-ordinator (SSCO) who co-ordinates school sport in the family of schools and a Primary Link Teacher (PLT) who implements the agreed programme in their schools. It is anticipated that by 2006 there will at least be 600 schemes involving 3 000 SSCOs and 18 000 PTLs. This initiative is funded by the Lottery Fund (Gilliver, 2003).

The US Congress approved a bill for the year 2001 which includes a $5 million grant for the Physical Education for Progress Act (PEP). The American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD), the National Association for Sport and

Physical Education (NASPE), the State and District AAHPERD Associations, the Sporting Goods Manufactures' Association and the American Heart Association sponsored the original bill. The PEP Act authorises the Secretary of Education to award grants to initiate, expand or improve PE programmes for learners from kindergarten up to the 12th grade (Feingold, 2001).

In the US the President's Council on Physical Fitness and Sports (PCPFS), consisting of private citizens appointed by the President of the US, promotes physical activity/fitness by motivating Americans of all ages to be active. The Council was established in 1956. The PCPFS works with scholars and professionals in various programmes of which some are: The President's Challenge Physical Fitness Award; Healthy People 2000/2010, The Presidential Sports Award; and the PCPFS Research Digest (Spain, 2000: 30).

The Australian Council for Health, Physical Education and Recreation (ACHPER) has strategic partnerships with the National Heart Foundation and Sports Medicine Australia (SMA) as well as government (in education, health, sport and recreation) and the corporate sector. These partnerships were fostered through the education grants of Kellogg Australia. To emphasise the importance of and to give recognition to schools, ACHPER co-ordinated the Active Australia Schools initiative that is funded by the Australian Sports Commission (Emmel, 2001). A partnership between SMA, ACHPER and the Australian Society for the Study of Obesity (ASSO) made obesity a strong focus in the Active Australia campaign (Hills, 2001). Another action taken by ACHPER was to lobby the Australian Government to exclude the proposed Goods and Services Tax (GST) from all healthy foods and recreational or sporting services and activities (Emmel, 2001).

ACHPER believes that the best investment that can be made is in an educated nation, comprising active and healthy young people. In this endeavour alliances and partnerships are crucial for success. Governments, Health, Environment and Transport Agencies, The Australian Sports Commission, Departments of Sport and Recreation, Education Systems, Schools, Associations, Clubs, Teachers and Parents all have a vested interest in increasing the activity levels of the population. Although the summative force of all these agencies is acknowledged schools are recognised as a critical environment where enjoyable participation and health related physical activity should be promoted (Emmel, 2001).

The Canadian Association for Health, Physical Education, Recreation and Dance (CAHPERD) in partnership with Canadian non-profit organisations such as the Commonwealth Games Association of Canada has been involved in the Commonwealth Sport Development Programme, funded by Canada's International Development Agency for a number of years. The Canadian Sport Leadership Corps is a new development. The programme funds 9-12 PE graduates, or recently retired national athletes (with tertiary qualifications) to work in developing countries for up to one year (Higgs, 2001).

Quality Daily Physical Education (QDPE) is the flagship activity of CAHPERD whereby all Canadian schools are lobbied to offer daily PE, taught by trained specialists, throughout the year. Excuses from teachers and school principals lead to CAHPERD developing several publications including *No room in the Gym* designed to show how quality programmes can be taught in small spaces without a gymnasium. The *No room in the time table* was developed to show how daily PE can be incorporated into the time table without a reduction in academic

performance. The Canadian Active living Challenge and Quality School Health are two projects also run by CAHPERD (Higgs, 2000: 31).

In future all primary schools in the Netherlands will have specialist PE teachers and in secondary schools learners can choose PE as an optional examination subject apart from the regular lessons. However, in the technical and vocational training section for 16 to 20 year olds PE has come under much pressure (Stegeman, 2003). In Austria a number of positive examples of the ways in which the provision and delivery of PE takes place exists (Marshall, 2003).

National

History reveals that the low institutional priority of PE, in short, can be attributed to three problem areas. The availability of *qualified PE teachers* is a major problem in especially former Black schools. In the past *facilities* were allocated along racial lines with the result that in former Black schools, PE was taught irregularly or not at all due to a lack of the most basic educational facilities. The *non-examination status of PE* made it much less of a priority when it came to the provision of qualified teachers, material and resources and learners never took the subject seriously (Walter, 1994; George, 1995; Kloppers & Jansen, 1996; Keim & Zinn, 1998; Amusa, 1999; CEPD/EPU, 1999; Van Deventer, 1999).

Notwithstanding the low institutional status of PE, it is believed that the former South African government viewed it as an instrument to control its ideological agenda. Some authors are of the opinion that in the former White schools, PE encouraged a vigilant White militarism to prepare White South African boys for the total onslaught waged by Blacks and communists against White SA. Youth Preparedness Programmes, Veld Schools and Cadets in White schools, as programmatic expressions of PE, openly declared the linkage between physical and mental preparedness (Kloppers & Jansen, 1996; Kloppers, 1997).

Under the new dispensation only sport is recognised as an important component for the overall development and upliftment of previously disadvantaged communities. International aid was received from England and Australia to accomplish this. In September 1994 the United Kingdom-South Africa Sports Initiative was launched to contribute to a sustainable and equitable sports development system in these communities. The whole process was monitored by a study conducted by Burnett and Hollander (1999). The results indicate that the absence of telephones and/or fax facilities and transport placed severe limitation on the implementation of the programmes. This placed severe constraints on the delivery of sport volunteers. Instead, employed people with access to resources were recruited as volunteers who found it difficult to carry a double burden. The communities involved, expected to have social problems addressed, but it became clear that only national sports interests were served (Burnett & Hollander, 1999).

In 1995 the Australia-South Africa Development Programme between the Australian Sports Commission and the National Sports Council (NSC) of SA was launched. This programme was channelled through the sports federations (elite sport) and the education system ("sport for all") whereby children were afforded the opportunity to participate in sports and physical activity at schools (Burnett, 2000).

A study conducted by Burnett (2000) indicates that the effect of the programme was diminished by a lack of opportunities to be active, too many children in the groups, not having enough presenters or access to suitable and adequate fields and sports equipment. One of the primary constraints was the lack of in-service, continued or local training and support

(Burnett, 2000).

For the new government it is important to present a representative racial picture in high profile sports, while emphasising the redistribution of resources and broadening the base of youth participation. However, to ensure favourable medal counts at elite sports competitions, the limited funds have to be allocated with these national priorities in mind. Against this backdrop the sports delivery network find it more economically and politically 'profitable' to promote elite sport at the expense of PE and "sport for all" community projects (Burnett & Hollander, 1999: 97). The same has happened in Australia prior to the 2000 Sydney Olympic Games. The trend was funding in support of a small and elite number of performers in a narrow range of sports (Kirk, 1997). The same situation is found in England (Talbot, 1999). According to Hardman (2002: 46) the heavily state subsidised elite sport implies "sport for the best and neglect of the rest". Talbot's (1999) main concern is that the role PE played in schools will ultimately be filled by sports agencies.

Many governments are led by politicians to provide substantial funding in the effort to establish some kind of national, political and cultural supremacy by seeking to win medals in Olympic and other world-level elite sport championships (Hardman, 2002). As Hardman (2002: 47) states:

> Perhaps, it was that great God, 'Sport' (in its highly competitive form), which concentrated the political mind at federal level in Australia: the initial multi-million Australian dollar investment in preparation for winning 60 medals in the Sydney Olympic Games 2000 was accompanied at the time by under-resourcing of physical education in several Australian states.

A perceived priority would be to link "sport for all" programmes to PE offered in schools. The narrow focused sports programmes outside formal education present a substantial drain on scarce resources and may exclude the majority of children from the potential positive educational effects of PE (Burnett & Hollander, 1999: 97).

Since 1995 a number of initiatives took place to ensure that PE and school sport has a place in South Africa's education system (Van Deventer, 2002). With the publication of the Revised National Curriculum Statement (RNCS) in 2002 it became clear that PE as a school subject 'disappeared' from the national curriculum. The only resemblance to PE is found in the foci of Life Orientation (LO). In both the General Education and Training (GET [Grades R-9]) and the Further Education and Training Bands (FET [Grades 10-12]) LO is compulsory for all school going learners. It should be kept in mind that the FET National Curriculum Statement of 2002 is still in draft form.

Fortunately the integrated approach of the RNCS makes it possible to integrate the foci of LO as well as LO with other learning areas or subjects. The focus *physical development and movement* in the GET Band can easily be integrated with *health promotion* and to a certain extent *social development, personal development* and *orientation to the world of work* within

the learning area LO. In the FET Band *recreation and physical well-being* can be integrated with *personal well-being* and to a certain extent *citizenship education and social justice* and *careers and career choices*. Integration implies that time can be made up to serve the purposes of PE.

The current state of affairs is that PE specialists are no longer being appointed at schools. This means that generalist teachers, who have neither knowledge nor understanding of PE, might be required to teach LO (Hardman & Marshall, 2001). Another area of concern is the fact that the development of learning programmes is the responsibility of schools and teachers (DoE, 2002a). This scope could entail that the "PE" focus of LO is ignored (CEPD/EPU, 1999) or that widespread variations in the actual delivery of "PE" will occur (Marshall, 2003). Another factor is that educational rationalisation gave rise to larger classes with the result that teachers in the Foundation Phase (Grades R-3) has less time to spend on learner's motor development or designing movement programmes (Nel, 1999).

The contact time that the RNCS allocates for LO in the GET Band, shows a decreasing trend as learners increase in age (Pote, 2001). In the FET Band the languages are allocated 4.5 hours, mathematics 5 hours, core subjects 4.5 hours and elective subjects 4.5 hours, while LO only has 2 hours (DoE, 2002b).

"PE" as a focus of LO is compulsory for all schools, but, due to its low priority no implementation and monitoring strategies are in place to ensure delivery. It is therefore becoming more difficult to practise PE in historically disadvantaged schools, since the lack of qualified teachers and facilities is not being addressed (CEPD/EPU, 1999).

Taking the health status of children and the initiatives provided earlier into account one wonders whether reports on quality PE programmes in schools and communities are not just lip service (Hardman, 2002; Chernushenko, 2003). Despite all these initiatives "sport for all" remains "sport for some". There is not much evidence of practical programmes for all with *adequate* financial support (Kirk, 1997; Hardman, 2002: 46,47). As Hardman (2001: 26) states "economically developed countries also show significant gaps between policy requirements and actual implementation". This viewpoint is also supported by Kidd (2001) and Marshall (2003).

THE WAY FORWARD

It is clear that the goals set by many national and international policies and actions cannot be met because the time allocated to PE in the curriculum and the resources, including human resources, for teaching quality PE are inadequate in most countries. It seems that the importance of PE is simply ignored by policy and decision makers and other concerned groups who have no knowledge of PE and its benefits for the present and future health and well-being of young people (ICSSPE, 1999).

No matter how strong the research-based evidence of the value and benefits of quality school PE is, it cannot be assumed that developing countries could give high priority to PE in their education policies (Darlison, 2001). The dilemma for these countries in funding and delivering PE is found within the parameters of limited resources, high expectations, diverse objectives and political priorities to compete for global recognition (Burnett & Hollander,

1999). However, there is reluctance in the developing world to acknowledge the contribution PE and sport can make to economic and social development (Kidd, 2001).

To claim the rightful place of PE programmes in schools we need to take stock, activate advocacy agendas to persuade policy makers of the long-term benefits and to reconstruct PE (Hardman, 2001; 2002). We need strong economic arguments to turn the cynics and sceptics

although it should be a no-brainer that an investment in physical activity yields significant dividends (Kidd, 2001). Chernushenko (2003) believes that society as a whole can benefit economically and socially by encouraging and providing access to physical activity and sport opportunities. Worldwide there is a more sustainable approach to development. Chernushenko (2003: 61) sees the goal of sustainable development as to:

> …have a healthy planet, populated by healthy individuals, supporting healthy societies and economies. The goal of quality physical education, on the other hand, is to produce healthy individuals, capable of leading long, healthy and productive lives. The two goals are connected and complementary: healthy, active individuals play a key role in the creation and maintenance of a sustainable community, while sustainable development is an important contributor to the development of healthy individuals.

The challenges PE are facing include the need to embrace strategic initiatives at school, local community, national and international levels (Hardman, 2002; Van Deventer, 2002). These initiatives could have 'global' trans-national or cross-cultural applicability as long as they are suitably adapted to meet with 'local' circumstances. "Partnership …is the key word for future directions in the mutual best interests of physical [and health] education and sport in and out of schools" (Hardman, 2002: 47). If we want to see change we need to realise that we cannot work in isolation. To achieve our objectives whether they are health promotion or social development we need to combine and co-ordinate our efforts (Spain, 2000; Darlison, 2001).

A concerted effort between different stakeholders is needed. To convince government about the numerous benefits regarding regular participation in physical activities for children now and in future a national survey could be undertaken to determine what the situation is regarding their health, movement competencies and general fitness levels. What we need is a concerted effort to form a collective perspective (Hills, 2001). The biggest professional challenge is to get all the stakeholders involved and secondly to harness the combined strengths of so many professionals, policy makers and those from other sectors for the common good (Hills, 2001). Physical activity is not politically contentious, it has few, if any, opponents; it is a highly cost effective public health and social intervention (Darlison, 2001).

CONCLUDING COMMENTS

SA needs a structured, cost-effective approach to PE and health education that stipulates national objectives and detailed strategies to obtain these objectives to aid long-term health promotion. Dietary habits as well as physical activity patterns for young children should be addresses through short- and long-term objectives (De Klerk, 2002).

Quality LO can achieve these short- and long-term objectives through schools with the necessary support from the national and provincial departments of education. The following strategies could impact on the quality of LO:

- form relationships between various stakeholders at regional, national and international levels and pool physical and human resources. To this end, communication channels should be opened between LO, sport, sport science, health care, national strategies and campaigns, community programmes, public and private sectors to ensure that resources are optimally utilised to meet the health and sport-related needs of each of these sectors, with particular emphasis on youth and school sport;

- attend to the feasibility of PE as a focus of LO, and its contribution to health and sport participation in general;
- provide a reasonable amount of curriculum time in every phase, and, ideally, daily physical activity in primary schools;
- produce qualified LO specialists. Pre-service training (PRESET) of teachers should commence immediately to ensure qualified staff in the long-term;
- provide a budget for in-service training (INSET) in order to make provision for LO teachers as a short-term solution and the maintenance of facilities and investment in new facilities and equipment, ensuring that all aspects of the curriculum can be provided whether on school premises or at locations away from school (e.g. swimming pools, sports and dance centres, and the outdoors);
- commission learning area/subject advisors and lecturers from tertiary institutions to assist in the training (INSET) of teachers interested in LO and sport;
- develop links with partner schools and community partners in sport and recreation activities;
- provide funds for research to sustain ongoing programme and curriculum development on LO and sport in the South African context, in GET, FET and Higher Education Bands;
- acknowledge that the existence of a professional association can provide a professional service to its members in collaboration with the national and provincial departments of education and national/regional sports bodies.
- involve and educate parents by promoting the concept of quality of life through healthy life-styles and their own importance as role-models; and
- allow communities to play an active role in school sport (Van Deventer, 2000).

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