S.A. Journal for Research in Sport, Physical Education and Recreation, 2003, 25(1): 97-113.
S.A. Tydskrif vir Navorsing in Sport, Liggaamlike Opvoedkunde en Ontspanning, 2003, 25(1): 97-113.
ISSN: 0379-9069

THOUGHT SAMPLING OF CRICKETERS DURING BATTING

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ABSTRACT

Researchers and practitioners have expressed the need for the use of qualitative methodological techniques in sports psychology research. In response to this challenge, the authors applied a multiple-case study research strategy and in-depth interviews to identify the experiences of three potentially elite, top-order cricket batsmen during batting. The content analysis of the thought-sampling data obtained from nine interviews (i.e., a baseline interview followed by interviews subsequent to one good and one poor batting innings for each participant) revealed three major dimensions, namely, cognitions, affect and related behaviours. Within the cognitive dimension, four categories were identified, namely, task-focused thoughts, where strategy thoughts were predominant, positive/motivational thoughts such as self-praise, negative/inappropriate thoughts such as premeditation of shots and worries and doubts, and lastly, assorted thoughts. The affect dimension comprised categories of positive/normal affective states and negative affective states. The categories of related behaviours were batting strategy, behavioural routines, inter-personal issues, observation, physical practice, reaction to unfavourable situations, visual focus and warm-up. Based on the findings of the study, implications for practice are outlined.

Key words: Attention; Cognitions; Cricket batting; Self-talk.

INTRODUCTION

Few areas in sports psychology are considered as important to overall performance as the area of concentration or attention (Cox, 1985). The ability of athletes to control their attention and direct it to task-relevant cues is critical for the enhancement of their performance (Nideffer, 1979; Singer *et al*., 1991). Cricket specialists have supported this view (Gordon, 1990; Winter, 1992).

The game of cricket, and specifically the activity of batting, is peculiar in a number of ways. It shares characteristics of both team and individual sports. Although, like baseball and softball, cricket is classed as a team game, each individual's batting score is recorded separately. Specialized roles within the cricket team of eleven players include bowler, wicket-keeper, all-rounder (usually batting and bowling) and batter. The number of runs scored by an individual is inevitably used as a criterion for selection purposes, specifically for specialist batters and all-rounders. The cricket batter has one or two chances to bat during a game, depending on whether it is a single-innings or double-innings match. One fleeting lapse in concentration can lead to the batter's dismissal, and unlike players in most other sports, he/she generally has no chance to

recover from mistakes. Cricket also shares some characteristics with the game of golf in that the batter, like the golfer, may have to concentrate for many hours (up to eight hours per day). He/she therefore has to learn to "switch on" and "switch off" the intensity of concentration throughout his/her batting innings. The period of a cricket batter's innings on any one day may be as short as the time that it takes to face one delivery from the opposing bowler, and as long as a full day's play (eight hours), and his/her attentional processes play a vital role in ensuring a successful batting innings.

The important role of cognitions, which may influence the attentional focus of the athlete, is also widely acknowledged. Kirschenbaum and Bale (1984) maintain that the successful execution of motor actions is often affected by cognitive or thought processes, and therefore certain cognitive abilities or skills have a distinct effect on sports performance. Singer (1984) supports the view that appropriate cognitions are essential for skilled behaviour. He states that cognitive processes are continually active in training and orientation for the sports contest, directing activities during the contest and interpreting and adjusting to the outcome of competition. Athletes need to learn to control their thoughts and feelings in order to optimise arousal levels during meaningful events with uncertain outcomes (Singer *et al*., 1991). In their research with skilled female collegiate tennis players, Landin and Herbert (1999) found that the players experienced increased confidence, and improved movement patterns and outcome scores following the implementation of a simple two-word self-talk strategy designed to improve their volleying skill.

Despite the important role of self-talk in sports performance, limited systematic research has been done in this area. Hardy and Jones (1994) conducted a survey using 37 British and international sports psychologists on what they considered priorities for sports performance-related research over the following 5-10 years. They concluded that, in the area of psychological skills-training, there is a definite need for the development of techniques for collecting and analysing self-statements, the use of self-statements to cue psychological skills such as anxiety and attention control, and the development of techniques for training athletes to use self-statements appropriately.

The cricket batter has a reasonable length of time to deliberate in the control processing mode, and the aim of this study is to identify the thoughts which take place at strategic times before, during and after an innings in a match situation. It is reasoned that these cognitions should provide an indication of the batter's attentional focus in the batting situation.

METHOD

Participants

Purposive sampling was utilized to select the three study participants who were members of the Eastern Province Cricket Academy and from whom informed consent was obtained. All participants were considered by the Director of the Academy to be top/middle order batters (positions 1 to 5), and played in one of the two University of Port Elizabeth (UPE) premier league teams. All three were first year university students, with ages ranging from 18 to 20 years. The participants were considered to be representative of potentially elite specialist batsmen, and an exploration and description of the three cases were considered sufficient to saturate the themes identified.

Procedures

In order to ensure that the data obtained in this investigation are valid, the guidelines proposed by Eklund *et al*. (1993) with regard to gaining entry into the cricket setting were heeded as closely as possible. Considerations recommended include the researcher as a person, connections to the setting, account of the proposed research, knowledge of the field setting, and courtesy.

A concerted effort was made to develop trust and rapport with the participants before the main investigation began, and it remained a priority throughout the study. Research, as well as psychological consulting, had been undertaken with the UPE cricketers prior to this investigation, and therefore the primary researcher (first author) had close connections with the potential study participants. Prior to the start of the investigation a brief, straightforward and appropriate account of the proposed research was given to the Director of the UPE Cricket Academy, who made valuable contributions to the investigation protocol. Potential participants were identified, immediate interest in the study was shown by each participant, and permission to be part of the study was granted by the individuals. During their first interview, each participant was given an explanation and outline of the proposed study.

The primary researcher's knowledge of the cricket setting is adequate as a result of previous research in the field and much reading about the sport. It was therefore easy to understand individual predicaments and empathise with the participants. Experience as a national and provincial sportsperson and coach, added to the easy establishment of rapport with the cricketers.

Participants were always treated with courtesy and respect, and the primary researcher refrained from enforcing any participation upon them. The completion of match detail sheets and interviews was voluntary and done at times convenient to the participants. The performance of the cricketers was seen as a priority, and the utmost was done to ensure that the investigation in no way interfered with the individual's performance. The primary researcher remained sensitive to the dynamic, often pressure-filled sports environment.

Data collection

In order to gain a thorough overview of the experiences of cricket batsmen relating to batting, an extensive list of possible batting-related scenarios was drawn up by the first author. After a pilot study had been undertaken, a revision was made of the interview questions. This revised version of the set of open-ended questions was presented to a national cricket coach, a national player (specialist batsman and captain) and a sports science academic (who has also been a specialist provincial batsman) for their input regarding important scenarios relating to cricket batting. Their expertise was used in drawing up the final draft for the interviews.

In-depth retrospective interviews were used to gather data on the cognitions of the batsmen. This entailed semi-structured, direct, personal interviews in which a single respondent was asked a set of open-ended questions regarding thoughts or self-talk relating to batting in cricket. Videos of the respective batting innings were used to aid recall.

At least three interviews were conducted with each participant. Gould *et al*. (1992a, 1992b) suggest that multiple interviews be held with athletes over time in order to determine mental processes, and it was deemed sufficient to make use of baseline data, together with data relating to

one successful and one unsuccessful performance, to explore and describe experiences relating to cricket batting in this investigation.

Prior to the start of the league cricket season, an initial interview was undertaken to brief each participant as to the objectives of the study and the role that he would play, to ensure the participant of the confidentiality of the data, and to confirm his willingness to act as an honest and reliable participant in the study. After the initial briefing, and a few rapport-developing questions (e.g., When did you start playing cricket?), the participant responded to the semi-structured open-ended set of questions as he generally experienced the situations during batting.

Apart from a baseline interview (Appendix A), at least a further two interviews were conducted with each participant during the course of the first half of the cricket season. One interview followed a good innings and one a poor innings (as rated by coach and participant). Applicable questions from the baseline interview protocol were used during these subsequent interviews.

The advice of Gould and his colleagues (1992a, 1992b) was heeded in that a video recording was made of each participant during Eastern Province premier league and South African Universities (SAU) matches in order to aid recall of thoughts during batting. Matches comprised 60 batting overs per team, played on one day.

With the aid of a video recording of the particular batting innings, the participant was required to recall and then reconstruct from memory his thought content while batting in that particular cricket match which took place a day or two prior to the interview. In the case of the interviews at the SAU tournament, the video recordings were not used. All interviews were tape-recorded on audiocassettes with permission from the participants, and transcribed verbatim and content-analysed at the end of the data collection process.

The video recordings proved invaluable when preparing for and undertaking the post-match interviews, especially when the relevant batting innings stretched over a relatively long period. Subsequent to the match, the primary researcher viewed the video recording, taking note of relevant occurrences, and, using this material together with the match analysis sheet, structured the interview.

Data analysis

The data were in the form of words, and therefore content analysis was the appropriate method for the analysis of the data. Berelson (1952:18) defines content analysis as "a research technique for the objective, systematic, and quantitative description of the manifest content of communication".

Guidelines for the organization and interpretation of unstructured data as proposed by Côté and his colleagues (Côté & Salmela, 1994, 1996; Côté *et al*., 1993; Côté *et al*., 1995) were followed in the content analysis of the interview data. A brief outline of the steps undertaken follows:

1. Each completed interview was transcribed verbatim.
2. The text of each interview was then divided into significant pieces of information or meaning units.
3. Through the process of induction, the meaning units were compared and regrouped into common themes, referred to as properties, which were named according to the common

features shared by all their meaning units.

4. Properties were likewise compared and regrouped into sub-categories and subsequently into larger and more embracing categories.
5. The final step in the inductive process involved the grouping of categories into themes at the highest level of analysis referred to as dimensions.
6. Deductive re-examination of transcripts and themes of greater generality (dimensions and categories) was conducted to ensure that the meaning associated with the raw data meaning units had not been misconstrued in the analytic process or in the generation of labels for the themes of greater generality.

Frequency counts were used as a means of verifying that all the coding units were included in the content analysis of the data, and to promote meaningful interpretation. The results, however, are not reported in terms of frequencies or percentages because of the small sample size.

In order to assure the trustworthiness of the data collection and the data analyses procedures, the following measures were taken: The prevention of response bias during interviewing as best as possible; the use of audiotapes and videotapes for data collection; the collection of data over a three-month period; the presentation of explicit protocols for the planning, execution and reporting of the study; the employment of an independent coder to validate the results; and the reviewing of the drafts by the participants concerned.

RESULTS AND DISCUSSION

A summary of the results from the thought sampling content analysis from the nine interviews follows. Tables 1 to 3 present a summary of the properties (raw data themes), sub-categories and categories induced from the interview data, within the dimensions Cognitions, Affect, and Related Behaviours. The three participants contributed equally to the data collection process, and data from the nine interviews were combined in the data analyses procedure.

When considering the overall or combined experiences of the three participants who formed the sample group in relation to cricket batting, a number of observations can be made. These are discussed according to the induced dimensions.

Cognitions

Table 1 provides a summary of the categories, sub-categories and properties (raw data themes) of the Cognitions dimension. An example of a quote that fits within the Cognitions dimension, the Negative/Inappropriate thoughts category, the Inappropriate strategy choice sub-category and the Shot premeditation property is: “You start basically nominating balls as well. You think to yourself, okay, where is this ball going to go”.

TABLE 1. **SUMMARY OF COGNITIONS DIMENSION: CATEGORIES, SUB-CATEGORIES AND PROPERTIES**

Categories	**Sub-categories**	***Properties*** **(Raw data themes)**
Task-focused thoughts	Environmental feedback	*Ball flight* *Batting conditions* *Field placings* *Match situation/state* *Opposition's strategy* *Scoring possibilities*
	Evaluation	*Dismissal* *Important other's evaluation* *Performance* *Performance comparison with a model*
	General match focus	*General match focus*
	Goals	*Performance goals* *Short-term outcome goals* *Vague outcome goals*
	Partner communication	*Batting order* *Opposition bowler's strategy* *Positive reinforcement / encouragement* *Strategy*
	Pre-delivery routine	*Pre-delivery routine*
	Pre-match organization	*Equipment preparation* *Physical warm-up* *Pre-match preparation*
	Strategy	*Acceptable run rate* *Attacking strategy* *Backing up* *Circumspection* *Defensive strategy* *Dictating to the bowler* *Dominating the strike* *Increasing effort to score* *Irritating the bowler* *Negatively phrased instruction* *Opposition strategy* *Opposition and personal strategy* *Personal strategy* *Positively-phrased instruction* *Positively- and negatively-*

Categories	**Sub-categories**	***Properties*** **(Raw data themes)**
		phrased instruction
		Taking the strike
		Team strategy
	Technique	*Technique*
		Bowler's strategy
		Outcomes of success and failure
	Visualization	*Performance comparison with a model*
		Performance in general situations
		Personal strategy
		Positive performance
		Positive situations
	Arousal control	*Calming down thoughts*
Positive/Motivational thoughts	Positive approach	*Acceptance of unfavourable situations*
		Positive attitude
		Success expectations
	Positive self-statements	*Self-belief*
		Self-motivation
		Self-praise
	Inappropriate strategy choice	*Anticipation of a certain delivery*
		Shot premeditation
		Too attacking/defensive
	Negative approach	*Negative attitude*
		Negative expectations
		Self-reprimand
		Visualization of negative outcomes
	Past failures	*Missed opportunities*
		Previous dismissals
		Previous mistakes
	Pressure-related thoughts	*Anxiety-provoking thoughts*
		Pressure to perform successfully

Categories	Sub-categories	*Properties* (Raw data themes)
Negative/Inappropriate thoughts	Task-irrelevant thoughts	*Fault over-correction* *Too much thought* *Unfocused* *Verbal response to sledging*
	Thoughts interfering with automatic skill execution	*Batting strategies* *Previous delivery* *Superstitions/Rituals*
	Worry and doubt	*Batting conditions* *Batting technique* *Strategy choice* *Insignificant issues* *Insufficient preparation* *Lack of form* *Losing one's wicket* *Negative evaluation* *Negative outcomes* *Performance* *Personal success* *Personal appearance* *Personal problems* *Practice input* *Psychophysiological state* *Run rate* *Stealing the strike* *Teammates' reactions* *Team strategy*
Assorted thoughts	Limited thoughts	*Limited thoughts*
	No conscious thoughts	*No conscious thoughts*
	Non-batting-related thoughts	*Non-batting-related thoughts*
	No thought of being dismissed	*No thought of being dismissed*
	Partner's strategy	*Partner's strategy*
	Superstitions/Rituals	*Superstitions/Rituals*
	Team success	*Team success*
	Unaware of personal score	*Unaware of personal score*
	Wishful thinking	*Wishful thinking*

None of the irrational self-talk or cognitive distortions identified by Ellis (in Heyman, 1984) and Gauron (1984), and adapted by Winter (1992), were evident from the interview transcripts. This indicates that the participants in the present study were chiefly rational thinkers, and without drawing any conclusions, it would be expected that other potentially elite batters would display similar cognitive trends. The expectation of being perfect or expecting others to do everything correctly, as reported by Participant B, can perhaps be classed as irrational thinking, and this perfectionism may need to be disputed. It is important that the batter learns to control that which

is potentially under his control, namely, his own thoughts, feelings and behaviours, and accept and cope with that which is not controllable.

The occurrence of negative thoughts, although not seen to be irrational, was evident, especially with regard to negative scenarios during batting. More important than the experiencing of negative thoughts is how the batter deals with them. In some cases negative thinking was associated with the ineffective performance of the participants (e.g., thoughts of past failures led to tentative play), but in other cases there was no observable or specifically reported negative effect. It is therefore important for the practitioner to determine whether the negative thoughts have a debilitating effect on the batter's performance.

Inappropriate strategy choice in the form of premeditation or nomination of shots appears to be a relevant issue to be addressed by the cricket coach and/or sports psychology consultant. This premeditation implies that the batter pre-programmes himself to react, often inappropriately, in a certain way, which is a form of control processing. The batter is continually required to analyse the game situation and may need to improvise when the circumstances demand an attacking strategy. However, in general the "big shots" should be played when the delivery warrants the stroke or the batter has a natural capacity to hit over the top. It seems pertinent that the batter applies the appropriate strategy in all situations in order to be successful, and therefore young cricketers should be coached specifically regarding strategy choice in various match situations. The playing of every bowler and every delivery on merit should form the basis of all strategies (Gordon, 1990; Winter, 1992).

The majority of thoughts experienced with regard to batting were task-focused, with strategy thoughts prominent. All three participants also made use of positive/motivational thoughts. These results lend partial support to the proposal of Rushall (1989) that task-related thoughts occupy the major portion of the cognitive thinking of athletes during sports performance, and that positive self-talk, together with mood words, make up the remainder of their thought content. No use of mood words was evident in the thought content of the participants in this study.

When comparing the categories of cognitions identified in previous research with those of the present investigation, there is some but not extensive overlap. One of the theme categories within Schömer's (1990) mental classification system used by marathon runners, namely, environmental feedback, shows a similarity with the task-focused sub-category of environmental feedback. There is also evidence of self-instruction in the strategy sub-category in this study.

Commonalities with the cognitions and affect categorization of wrestlers by Gould *et al.* (1992b) and Eklund (1994) include Gould and colleagues' higher order themes of positive and negative feeling states, strategy focus, and negative thoughts; and Eklund's superordinate themes of task-focused awareness, assorted thoughts, and negative and positive affective states.

From the above discussion relating to thought sampling, it appears that thought content is very sport- or situation-specific. Similar types of sports would be expected to reveal and/or require similar thought content. Team games like hockey, soccer, rugby and basketball would have aspects in common, while long-distance events like cycling, running and cross-country skiing would show similarities in cognitive content.

The goals, which were reported by the participants, are mainly outcome-oriented (e.g., to score 50 runs). Orlick (1990) suggests that the athlete focus energy on specific aspects of performance that are potentially within control, and avoids outcome goals not under immediate control.

Although propagated as having a positive effect on performance (Boutcher & Crews, 1987; Crews & Boutcher, 1986, 1987; Eklund *et al*., 1993; Orlick & Partington, 1988), only one participant made use of a set pre-shot routine, which comprises cognitive and behavioural aspects. Winter (1992) believes that a routine or ritual, which the batter should go through before facing each ball, is vital to concentration.

Affect

Table 2 outlines the categories, sub-categories and properties (raw data themes) of the Affect dimension. An example of a quote that fits within the Affect dimension, the Positive/normal affective states category, the Confidence-related states sub-category, and the Confident property is, "I was feeling very confident".

TABLE 2. **SUMMARY OF AFFECT DIMENSION: CATEGORIES, SUB-CATEGORIES AND PROPERTIES**

Categories	**Sub-categories**	***Properties*** **(Raw data themes)**
Positive/Normal affective states	Confidence-related states	*Assertive* *Confident* *Confident and good* *Confident and relaxed* *In control* *Secure and confident*
	Motivation-related states	*Aggressive* *Eager* *Keen* *Motivated*
	Physical feeling states	*Comfortable* *Lazy*
	Pressure-related states	*Calm, relaxed and confident* *Not nervous* *Not pressurised* *Relaxed* *Relaxed and calm* *Relaxed and good* *Relieved* *Relieved of pressure* *Slight nervousness / Butterflies* *Unconcerned*
		Fine *Good*

Categories	**Sub-categories**	***Properties*** **(Raw data themes)**
	Satisfaction-related states	*Good and comfortable* *Good and happy* *Good, happy and confident* *Happy* *Happy and confident* *Not bothered* *On top of the world* *Unintimidated*
Negative affective states	Anger-related states	*Cross* *Frustrated* *Furious* *Irritated* *Irritated and cross* *Upset/angry*
	Confidence-related states	*Confidence decline* *Lack of confidence*
	Dissatisfaction-related states	*Bad* *Depressed* *Disappointed* *Sorry for self*
	Physical feeling states	*Cramped / uncomfortable* *Lazy / Non-energetic* *Uncomfortable*
	Pressure-related states	*Flustered* *Nervous* *Nervous and jittery* *Pressured to perform* *Rushed* *Tense* *Too relaxed* *Worried*

The interview data show a mixture of emotions experienced in relation to cricket batting. Positive scenarios invariably resulted in positive feelings, which were generally linked to positive cognitions. Many of the negative affective states were experienced after dismissals, which is understandable and therefore not a significant concern for the batter, cricket coach or sports psychology consultant.

The majority of emotions or feelings reported, both positive and negative, concerned confidence issues (e.g., good, confident, happy, lack of confidence, confidence decline) or were pressure-related (e.g., relaxed, not pressurized, nervous, too relaxed). This emphasises the two issues of confidence and pressure that appear to be of concern to the cricket batter.

These trends regarding affective states support the premise that cognitions, emotions and behaviours are closely related. However, the direction of the relationship varied. For example, in some instances negative cognitions and/or emotions followed negative behaviours (e.g., running a partner out), while in others negative consequences followed after negative/inappropriate thoughts and/or emotions (e.g., frustration led to inappropriate strategy choice and subsequent dismissal).

Related behaviours

Table 3 presents a summary of the categories, sub-categories and properties (raw data themes) within the Related Behaviours dimension. An example of a quote that fits within the Related Behaviours dimension, the Behavioural routine category, and the Behavioural routine after leaving the crease sub-category and property is, "Or I don't even have to score a run. I always scratch twice".

TABLE 3. **SUMMARY OF RELATED BEHAVIOURS DIMENSION: CATEGORIES, SUB-CATEGORIES AND PROPERTIES**

Categories	**Sub-categories**	***Properties* (Raw data themes)**
Batting strategy	Employs an attacking strategy	*Employs an attacking strategy*
	Inappropriate strategy choice	*Inappropriate strategy choice*
	Plays tentatively	*Plays tentatively*
Behavioural routines	Behavioural routine while walking out and taking guard	*Behavioural routine while walking out and taking guard*
	Behavioural routine to relax	*Behavioural routine to relax*
	Behavioural routine after leaving the crease	*Behavioural routine after leaving the crease*
	Behavioural routine when a wicket falls	*Behavioural routine when a wicket falls*
	Behavioural routine after a bad stroke	*Behavioural routine after a bad stroke*
	Padded up quickly	*Padded up quickly*
	Takes guard	*Takes guard*
	Walks away from the wicket between deliveries	*Walks away from the wicket between deliveries*
Inter-personal issues	Seeks isolation after a poor dismissal	*Seeks isolation after a poor dismissal*
	Seeks positive feedback from others	*Seeks positive feedback from others*
Observation	Observation of opposition	*Observation of opposition*
Physical practice	Physical rehearsal of batting strokes	*Physical rehearsal of batting strokes*
	Practises proposed strategy	*Practises proposed strategy*
	Practises to overcome faults	*Practises to overcome faults*
	Practises weak aspects	*Practises weak aspects*

Categories	**Sub-categories**	***Properties* (Raw data themes)**
Reaction to unfavourable situations	Headed for the changing room Ignores sledging Rubs the injured body part	*Headed for the changing room* *Ignores sledging* *Rubs the injured body part*
Visual focus	Focus on the ball intensifies Focused on the bowler's arm action Inappropriate visual focus	*Focus on the ball intensifies* *Focused on the bowler's arm action* *Inappropriate visual focus*
Warm-up	Physical warm-up before batting	*Physical warm-up before batting*

Many of the behaviours reported involved routines or rituals which batters are known to follow prior to and during an innings (Winter, 1992). Other behaviours included the physical practice of specific batting aspects expected in upcoming matches (e.g., facing a particular type of spin bowler), and the physical practice of weak batting aspects subsequent to poor performances (e.g., footwork).

After playing a less than perfect shot one of the participants physically rehearses the correct batting technique, a practice propagated by Singer *et al*. (1991) as an appropriate attentional focus.

CONCLUSION

Implications For Practice

The results of this investigation suggest some practical guidelines for sports psychology consultants, cricket coaches and cricket players.

1. The use of post-match in-depth interviews in order to gain pertinent information about the experiences of cricket batters and their attentional focus during batting is highly recommended. However, this method is extremely time-consuming and probably not practically possible for the sports psychology consultant or cricket coach to employ. Baseline interviews in this investigation did not reveal significantly different responses to the interview questions compared with the specific post-match interviews. It should therefore be possible to gain valuable information regarding the experiences of cricket batters by making use of a general in-depth interview, and using questions like the ones in Appendix A. Possible interview questions which were found to be of less significance in this investigation and which could possibly be omitted if a shorter interview is warranted, include: Question (Q) 1 which concerns cognitions prior to an innings; Q14, which is similar to Q13; Q18 which is similar to Q19; Q22; Q29, which is similar to Q30; Q32; and questions 34 to 39, which concern cognitions experienced after dismissals. Question 20, which concerns thoughts relating to bowling changes, could be shortened to include three categories of bowlers, namely genuine pace, medium pace and spin bowling.
2. There appears to be a need to help batters combat negative and task-irrelevant thoughts that may interfere with attentional focus.

3. The determination of thought content may be a good way of identifying potential attention distracters.

4 The premeditation of shots was common among the participants, and a major cause of dismissals, often when the batter was required to push up the run rate. This may therefore be an area of focus for counselling and/or coaching. Because certain situations, specifically in limited overs matches, require the batter to score at a predetermined run rate per over, premeditation of shots may be a necessity. However, in most cases the appropriate selection of shots or strategy choice requires the batter to play each delivery on merit. This means attacking the loose deliveries and maintaining the run rate by scoring ones and twos whenever possible.

5. With regard to self-instruction used by the batsmen in the present investigation, there was evidence of negatively phrased instruction. It would seem necessary to assist batters in rephrasing self-talk or self-instruction into positives. For example, rather than to say "do not hit any loose shots" or "don't go out now", rephrase as "play tight" and "bat through the innings".

6. The use of more process-oriented, specific and positive goals is suggested. For example, together with aiming for a 50 or a 100, the batter should set performance goals like "play each delivery on its merit". Rather than setting a vague goal like "keep scoring runs", the batter can aim to "dispatch the loose deliveries and look for singles", and "bat sensibly through to tea" rather than "not lose my wicket before tea".

7. Apart from ongoing mental preparation for all cricketers, batters struggling with form may require special attention. Batters should also be guided in preparing mentally to face form loss in order to avoid debilitating consequences.

8. Although reporting similarities with regard to certain attentional factors, each individual participant's batting experiences are unique, and he/she should therefore be counselled on an individual basis. The situations which lead to negative/inappropriate thinking and subsequently also less effective performance, differ amongst the individual participants. It would therefore be important for the cricket coach and/or sports psychology consultant to identify individual scenarios which lead to ineffective attention and less than optimal performance. Although a few trends are evident regarding experiences relating to cricket batting, and sports psychology consultants and cricket coaches can consider certain consistencies when working with groups of cricketers, the need to individualize is paramount.

Although the present investigation is of an exploratory nature, important contributions have been made to the knowledge regarding cognitions, feelings and behaviours during cricket batting. It is hoped that this study will stimulate further research in the field, and will impact on the practice of sports psychology consultants and cricket coaches as they assist cricketers to prepare mentally for the pressure-filled environment of the cricket arena.

ACKNOWLEDGEMENT

This research was funded in part by the Centre for Science Development.

REFERENCES

BERELSON, B. (1952). *Content analysis in communication research*. Glencoe, NY: Free Press.

BOUTCHER, S.H. & CREWS, D.J. (1987). The effect of a preshot attentional routine on a well-learned skill. *International Journal of Sport Psychology*, 18: 30-39.

CÔTÉ, J. & SALMELA, J.H. (1994). A decision-making heuristic for the analysis of unstructured qualitative data. *Perceptual and Motor Skills*, 78: 465-466.

CÔTÉ, J. & SALMELA, J.H. (1996). The organizational tasks of high-performance gymnastic coaches. *The Sport Psychologist*, 10: 247-260.

CÔTÉ, J.; SALMELA, J.H.; BARIA, A. & RUSSELL, S.J. (1993). Organizing and interpreting unstructured qualitative data. *The Sport Psychologist*, 7: 127-137.

CÔTÉ, J.; SALMELA, J.H. & RUSSELL, S. (1995). The knowledge of high-performance gymnastic coaches: Methodological framework. *The Sport Psychologist*, 9: 65-75.

COX, R.H. (1985). *Sport Psychology: Concepts and applications*. Dubuque, IA: Wm. C. Brown.

CREWS, D.J. & BOUTCHER, S.H. (1986). The effects of structured preshot behaviors on beginning golf performance. *Perceptual and Motor Skills*, 62: 291-294.

CREWS, D.J. & BOUTCHER, S.H. (1987). An observational analysis of professional female golfers during tournament play. *Journal of Sport Behavior*, 9: 51-58.

EKLUND, R.C. (1993). Considerations for gaining entry to conduct sport psychology field research. *The Sport Psychologist*, 7: 232-243.

EKLUND, R.C. (1994). A season-long investigation of competitive cognition in collegiate wrestlers. *Research Quarterly for Exercise and Sport*, 65: 169-183.

EKLUND, R.C.; GOULD, D. & JACKSON, S.A. (1993). Psychological foundations of Olympic wrestling excellence: Reconciling individual differences and nomothetic characterization. *Journal of Applied Sport Psychology*, 5: 35-47.

GAURON, E.F. (1984). *Mental training for peak performance.* Lansing, NY: Sport Science Associates.

GORDON, S. (1990). A mental skills training program for the Western Australian State cricket team. *The Sport Psychologist*, 4: 386-399.

GOULD, D.; EKLUND, R.C. & JACKSON, S.A. (1992a). 1988 U.S. Olympic wrestling excellence: I. Mental preparation, precompetitive cognition, and affect. *The Sport Psychologist*, 4: 358-382.

GOULD, D.; EKLUND, R.C. & JACKSON, S.A. (1992b). 1988 U.S. Olympic wrestling excellence: II. Thoughts and affect occurring during competition. *The Sport Psychologist*, 6: 383-402.

HARDY, L. & JONES, G. (1994). Current issues and future directions for performance-related research in sport psychology. *Journal of Sports Sciences*, 12 (1): 61-92.

HEYMAN, S.R. (1984). Cognitive interventions: Theories, applications, and cautions. In W.F. Straub & J.M. Williams (Eds.), *Cognitive sport psychology* (289-303). Lancing, NY: Sport Science Associates.

KIRSCHENBAUM, D.S. & BALE, R.M. (1984). Cognitive behavioral skills in sports: Application to golf and speculations about soccer. In W.F. Straub & J.M. Williams (Eds.), *Cognitive Sport Psychology* (275-288). Lansing, NY: Sport Science Associates.

LANDIN, D. & HERBERT, E.P. (1999). The influence of self-talk on the performance of female tennis players. *Journal of Applied Sport Psychology*, 11(2): 263-282.

NIDEFFER, R. (1979). The role of attention in optimal athletic performance. In P. Klavora & J.V. Daniel (Eds.*), Coach, athlete and sport psychologist* (99-112). Champaign, IL: Human Kinetics.

ORLICK, T. (1990). *In pursuit of excellence: How to win in life and sport through training.* Champaign, IL: Leisure Press.

ORLICK, T. & PARTINGTON, J. (1988). Mental links to excellence. *The Sport Psychologist*, 2: 105-130.

RUSHALL, B.S. (1989). Sport Psychology: The key to sporting excellence. *International Journal of Sport Psychology,* 20: 165-190.

SCHÖMER, H.H. (1990). A cognitive strategy training programme for marathon runners: Ten case studies. *S.A. Journal for Research in Sport, Physical Education and Recreation,* 13(2): 47-78.

SINGER, R.N. (1984). The learning of athletic skills and the use of strategies. *International Journal of Sport Psychology,* 15: 271-282.

SINGER, R.N.; CAURAUGH, J.H.; MURPHEY, M.; CHEN, D. & LIDOR, R. (1991). Attentional training, distractors, and motor performance. *Human Performance,* 4: 55-69.

SINGER, R. N.; CAURAUGH, J. H.; TENNANT, L. K.; MURPHEY, M.; CHEN, D. & LIDOR, R. (1991). Attention and distractors: Considerations for enhancing sport performances. *International Journal of Sport Psychology,* 22: 95-114.

WINTER, G. (1992). *The psychology of cricket: How to play the inner game of cricket.* Sydney: Pan Macmillan.

APPENDIX A

Baseline interview questions

Please describe your thought content/self-talk at the following times before/during/after your innings: i.e., What do you think about or say to yourself? Please be specific, and use direct speech as far as possible.

1. Leading up to a match:
   a) During the week prior to a match:
   b) During the day/night before a match:
   c) During the morning of a match, up until approximately 30 minutes before the start:
2. Within the half-hour prior to your innings:
3. While padding up:
4. At the moment when a wicket falls immediately prior to your innings:
5. While walking out to bat:
6. When coming to the crease after a series of batting failures:
7. When coming to the crease when in good form:
8. Immediately prior to facing your first delivery:
9. When stuck on 0 for a long period of time:
10. Typical thoughts/self-talk between 1 and 10 runs:
11. While at the non-strikers end:
12. After a bad stroke:
13. After a good stroke:
14. After hitting a boundary:
    a) After a 4:
    b) After a 6:
15. Typical thoughts/self-talk between 10 and 45 runs:
16. When close to 50 runs:
17. Typical thoughts/self-talk between 50 and 90 runs:
18. When in the nineties:
19. When close to 100 runs:
20. At a bowling change:

a) When a bowler you enjoy facing comes on to bowl:
b) When a bowler you "fear" or respect comes on to bowl:
c) When an unknown bowler comes on to bowl:
d) When a medium pace bowler comes on to bowl:
e) When a spin bowler comes on to bowl:
f) When a fast bowler returns to the attack:

21. Shortly before breaks in the game:
22. During breaks in the game:
23. Immediately after breaks in the game:
24. After an intimidating delivery, e.g., bouncer:
25. When you lose a batting partner during a good partnership:
26. When you lose batting partners in quick succession:
27. When you are subjected to "sledging" from opposition players:
28. When you play and miss a number of deliveries:
29. After you have been dropped:
30. After surviving a close dismissal (e.g., run-out, LBW):
31. After running your batting partner out:
32. When your batting partner continuously steals the strike:
33. After being struck painfully on the body by a delivery:
34. After being dismissed for a duck:
35. After being dismissed for only a few runs:
36. After being dismissed after scoring a number of runs:
37. When you are dismissed by a good delivery:
38. When you are dismissed by a bad delivery or bad shot:
39. Immediately after your dismissal:
    a) After a well played innings:
    b) After a poor innings:
40. Immediately prior to your dismissal.
41. With regard to your experiencing of negative thoughts or talking negatively to yourself during your innings, please elaborate on the following: Situations, negative thoughts, and consequences.
42. Are there times during your innings when your internal thoughts interfere with the automatic execution of your batting strokes? YES/NO. If yes, please elaborate further regarding situations, interfering thoughts and consequences.
43. Do you follow a set pre-shot routine before every delivery? If so, please explain your routine in detail.

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