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The relationship between psychological skills and specialised role in cricket

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Abstract

Psychological skills related to positional play are evident in sport. It is believed that specific demands associated with playing position or role within a team sport require a unique set of psychological skills. This study examined the relationship between psychological skills and specialised role amongst 127 South African cricket players. The subjects were divided into 4 primary role groupings namely batsman (n=30), bowler (n=32), all-rounder (n=61) and wicket keeper (n=4). The wicket keeper group's results were excluded from the analysis due to an underrepresentation of wicketkeepers in the sample. Psychological skills were assessed by means of the Athletic Coping Skills Inventory-28 (Smith *et al.*, 1995) and Bull's Mental Skills Questionnaire (Bull *et al.*, 1996). One-way analysis of variance (one-way ANOVA) indicated no significant differences between the psychological skills of the various role groupings. However, there were tendencies for all-rounders to be more psychologically skilled than bowlers and batsmen. It was concluded that there is no distinctive psychological profile for classifying cricket players into performing specialised roles in the sport.

Keywords: Psychological skills, cricket, specialised role.

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Introduction

Cricket is an archetypal English sport that has grown to become one of the most popular sports in England, Australasia, the Indian subcontinent, the West Indies and Southern Africa (International Cricket Council: ICC, 2012/2013). The ICC World Cup is considered the second largest single sporting event in the world with a cumulative television audience exceeding five billion (Doley, 2009). Cricket's popularity is largely credited to the multiple variables involved and erratic one-on-one nature (Woolmer, Noakes & Moffet, 2008). South Africa is ranked amongst the best in the world in limited overs cricket and according to

Pyke and Davis (2010) this success on the international stage is channelled down to the country's aspiring youth and junior players.

In cricket, a team's performance has become analogous with national pride which has placed great emphasis on the accuracy and diligence involved in team selection (Rama Lyer & Sharda, 2008). Consequently, players attempt to stand out by striving to become a specialised batsman, bowler, all-rounder or fielder such as a wicket keeper. Studies and years of close observations in cricket have demonstrated various competencies necessary for successful batting (Penrose & Roach, 1995; Land & McLeod, 2000, Renshaw & Fairweather, 2000), bowling (Bartlett, Stockill, Elliot & Burnett, 1996; Stuelcken, Pyne & Sinclair, 2007) and fielding (Canaway, 2006; Woolmer *et al.*, 2008). For example, Woolmer *et al.* (2008) along with Canaway (2006) stress the importance for a wicket keeper to be extraordinary skilled in switching his/her attentional focus on and off between deliveries and avoid becoming mentally drained over long periods of play. However, few studies have discerned psychological differences between these different roles.

Research on psychological skills has demonstrated a tendency to propose intervention programmes which are personalized to meet the specific demands of specialised roles and different positional play within sport (Cox & Yoo, 1995; Sewell & Edmundson, 1996; Andrew, Grobbelaar & Potgieter, 2007; Eloff, Monyeki & Grobbelaar, 2011; Grobbelaar & Eloff, 2011). In this regard, Cox and Yoo (1995) have revealed a significant relationship between dependent psychological skill variables and various independent position specific variables in American football. More specifically, they have demonstrated that backfield players possess greater anxiety control, concentration and confidence levels compared to linesman players. In a comparable contact sport, Andrew *et al.* (2007) discovered that hookers and half-backs are more psychologically skilled than other playing positions amongst rugby union players. A significant relationship between psychological skills and positional play in netball was also marked, whereby goal attack and wing defence players recorded higher psychological skill scores compared to those in other playing positions (Grobbelaar & Eloff, 2011). In soccer and field hockey, it was noted that defenders recorded higher self-confidence levels than midfield players and goal keepers. Goal keepers on the contrary experienced higher anxiety levels compared to defenders, midfield players and forwards (Sewell & Edmundson, 1996). However, a recent study by Kurt, Catikkas, Ömürlü and Atalağ (2012) failed to support any direct relationship between playing position and other descriptive psychological attributes such as loneliness, self-esteem, trait anger and anger expression amongst soccer players.

The results of the cited investigations provide provisional grounds to support the assumption that psychological skills are directly related to playing position in

sport. The strength and nature of such relationship within the roles of cricket remains unclear. At this stage, there are hardly any documented findings in which the relationship between psychological skills and specialised role in cricket is addressed.

The purpose of this study was to determine whether psychological skills are related to specific roles in a cricket match. According to Humara (2002) too many coaches are skilled at evaluating and identifying athletes' physical attributes relating to success but are not conversant with the associated psychological attributes. Results of this study could change or influence psychological approaches and interventions within this sport. Refinement of research on psychological skills in cricket could also help with the optimisation of player potential.

Methodology

Sample

A non-probability quota sampling process was used to select a total of 127 A-side male cricketers playing one-day format cricket across three progressive levels of competition ranging from amateur to professional level. The levels of competition were recognised by the Northerns Cricket Union, an affiliate of Cricket South Africa. All participants were active members of the 2010/2011 cricket season and competed at youth cricket academy/secondary school (n=39), premier league/senior academy (n=68) and senior provincial (n=20) level in the Pretoria, Gauteng region of South Africa.

Instrumentation and data collection procedure

Psychological skills were measured by means of two reliable and valid questionnaires, namely the Athletic Coping Skills Inventory-28 (ACSI-28) (Smith, Shutz, Smoll & Ptacek, 1995) and the Mental Skills Questionnaire (Bull, Albison & Shambrook, 1996). These two instruments had a matrix-type design with statements on the left and anchored responses on the right. Data were gathered by means of a once-off group administration of the two questionnaires per team, under the guidance of the principal researcher and coaching staff.

The ACSI-28 developed by Smith *et al.* (1995) is a multi-dimensional measure of the following seven sport-specific psychological skills:

1. Peaking under pressure
2. Freedom from worry
3. Coping with adversity
4. Concentration

5. Goal setting and mental preparation
6. Confidence and achievement motivation
7. Coachability

Each of the seven scales of this inventory can range from 0 to 12, and are summated to yield a general coping resources score that can range from 0 to 84, which is assumed to reflect a multifaceted psychological-skill construct (Smith *et al.*, 1995). The ACSI-28 revealed a total general coping resources score with high internal consistency, reflecting alphas of 0.84 (n=594) for males and 0.88 (n=433) for females, totalling 0.86 (n=1027). The ACSI-28 was used in a one-week study on 97 male and female college athletes that yielded a test-retest reliability for a general coping resource score of $r=0.87$ and a total internal consistency reliability score of $r=0.86$ (Smith *et al.*, 1995). The ACSI-28 has been reliably utilised in South Africa (Andrew *et al.*, 2007; Grobbelaar & Eloff, 2011; Jooste, Van Wyk & Steyn, 2013).

The Bull's Mental Skills Questionnaire designed by Bull *et al.* (1996) contains 28 items that assesses participants along a six-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). This instrument measures the following mental skills:

1. Imagery ability (ia)
2. Mental preparation and goal setting (mp)
3. Self-confidence (sc)
4. Anxiety and worry management (awm)
5. Concentration ability (ca)
6. Relaxation ability (ra)
7. Motivation (m)

The Bull's Mental Skills Questionnaire recorded generally high Cronbach's alpha levels of 0.59 to 0.80 for the seven subscales in a study that involved 219 athletes (Bull *et al.*, 1996). Preliminary norms for South Africa was established by Edward and Steyn (2011) in an exploratory study of 419 male and female university students which revealed test-retest reliability scores that were corroborated by other South African studies (Edwards & Edwards, 2007; Edwards & Steyn, 2008).

The authors of the study have integrated two different psychological-skills questionnaires as justification of a potential broader range of psychological skills applicable to cricket. The ACSI-28 and Bull's Mental Skills Questionnaire collectively measure a sum of fifteen mental skills and to a certain extent, partly cover only five subscales (concentration, confidence, motivation, goal setting, and mental preparation).

Ethical procedures

Ethical approval was obtained from the Department of Biokinetics, Sport and Leisure Sciences at the University of Pretoria. An information letter explaining the aim of the study was given to each player and coach, whereby consent had to be given before participation in the study. Participants were assured of the confidentiality of their responses and coaches were only allowed access to team's overall results and not individual player's results in order to restrict the occurrence of "socially desirable" responses from participants and to limit the influence it might have on team selection. Participants were informed that they were free to withdraw from the study at any stage.

Analysis of data

Quantitative data were analysed using the computer-based IBM SPSS statistical software package. Descriptive statistics were used to give an indication of mean scores on the psychological-skills indices by specialised role in cricket. These descriptive statistics included the minimum and maximum values, mean scores and standard deviations. The mean score was used to describe central tendency. The mean scores of indices were calculated per role grouping. Inferential statistics were used to determine whether statistically significant differences existed between specialised roles on each of the psychological skills indices. Correlation analyses were also computed. One-way analysis of variance (ANOVA) was used to determine whether there were statistically significant differences ($p < 0.05$; $p < 0.10$) between psychological skills and various roles performed in cricket.

Results and Discussion

Wicket keepers were underrepresented in the sample, therefore this group was excluded from further analysis. Tables 1 to 2 present the performance of the groupings on the various psychological-skills subscales.

No significant differences ($p < 0.05$) were found for the different roles played in cricket on any of the psychological-skills subscales. However, trends were identified and were consequently discussed.

The relationship between psychological skills and specialised role in cricket 111

Table 1: Descriptive statistics and significant differences regarding the different coping skills among the different roles in cricket as tested with the Athletic Coping Skills Inventory-28 (ACSI-28)

| Variable | | Mean % | Std. Deviation | Minimum % | Maximum % | F-value | p-value |
|--|-------------|--------|----------------|-----------|-----------|---------|---------|
| Peaking under pressure | Batsman | 65.97 | 15.91 | 33.33 | 100.00 | 1.48 | .23 |
| | Bowler | 67.63 | 25.53 | 33.33 | 100.00 | | |
| | All-rounder | 73.69 | 19.18 | 8.33 | 100.00 | | |
| | Total | 69.09 | 20.43 | 8.33 | 100.00 | | |
| Freedom from worry | Batsman | 44.10 | 21.91 | .00 | 75.00 | 1.02 | .36 |
| | Bowler | 48.08 | 22.77 | .00 | 91.67 | | |
| | All-rounder | 51.96 | 22.89 | .00 | 100.00 | | |
| | Total | 48.04 | 22.64 | .00 | 100.00 | | |
| Coping with adversity | Batsman | 60.42 | 15.97 | 25.00 | 83.33 | .54 | .59 |
| | Bowler | 65.12 | 18.35 | 16.67 | 100.00 | | |
| | All-rounder | 64.22 | 17.42 | 25.00 | 100.00 | | |
| | Total | 63.25 | 17.27 | 16.67 | 100.00 | | |
| Concentration | Batsman | 66.67 | 12.53 | 50.00 | 91.67 | .23 | .80 |
| | Bowler | 65.71 | 14.40 | 41.67 | 91.67 | | |
| | All-rounder | 68.00 | 15.46 | 25.00 | 100.00 | | |
| | Total | 67.79 | 14.43 | 25.00 | 100.00 | | |
| Goal setting and mental preparation | Batsman | 55.43 | 20.96 | 8.33 | 83.33 | .62 | .54 |
| | Bowler | 59.88 | 25.84 | .00 | 100.00 | | |
| | All-rounder | 53.92 | 21.43 | .00 | 100.00 | | |
| | Total | 56.41 | 22.50 | .00 | 100.00 | | |
| Confidence and motivation | Batsman | 68.94 | 17.85 | 33.33 | 100.00 | 1.60 | .21 |
| | Bowler | 77.33 | 10.63 | 50.00 | 91.67 | | |
| | All-rounder | 74.67 | 18.02 | 16.67 | 100.00 | | |
| | Total | 73.64 | 16.53 | 16.67 | 100.00 | | |
| Coachability | Batsman | 77.43 | 12.88 | 50.00 | 100.00 | .26 | .77 |
| | Bowler | 78.09 | 17.78 | 41.67 | 100.00 | | |
| | All-rounder | 75.33 | 19.00 | 25.00 | 100.00 | | |
| | Total | 76.94 | 17.30 | 25.00 | 100.00 | | |
| General coping skills score % | | | | | | | |
| Batsman 62.56 | | | | | | | |
| Bowler 65.92 | | | | | | | |
| All-rounder 65.96 | | | | | | | |

*p<0.05; **p<0.10

Table 1 revealed that coachability, and confidence and motivation are the two highest recorded psychological skills (76.94% and 73.64%, respectively) amongst the various roles played in cricket. Freedom from worry (48.04%), and goal setting and mental preparation (56.41%) were the two lowest recorded skills.

Batsmen recorded lower scores in terms of coping with adversity, confidence and motivation, peaking under pressure, and freedom from worry, compared to bowlers and all-rounders. Coachability was the highest rated psychological skill for this group. The batting group had a calculated general coping-skills score of 62.56%.

Bowlers, on the other hand, demonstrated the highest scores in coping with adversity, coachability, goal setting and mental preparation, and confidence and motivation. They did, however, record the lowest score in concentration of all the other roles. The bowlers in the end scored an average general coping-skills score of 65.97%.

All-rounders outscored the other groups in concentration, peaking under pressure, and freedom from worry. They recorded the lowest score in goal setting and mental preparation. The all-rounders displayed a total general coping-skills score of 65.96% which almost equals the coping-skills score of the bowlers.

Nevertheless, none of the above differences between batsmen, bowlers and all-rounders were statistically significant as confirmed by results of both the parametric and non-parametric data analysis.

The various specialised roles in cricket performed similarly on the majority of the Mental Skills subscales (Table 2). The two highest-recorded skills for all three roles were self-confidence (73.23%) and motivation (77.76%). The two lowest-scored skills were mental preparation (67.27%), and anxiety and worry management (66.10%).

Batsmen demonstrated the lowest scores in mental preparation, self-confidence, concentration ability, and relaxation ability. This difference between the groups was, however, not statistically significant.

Although not significantly different, the bowlers outscored the other groups in mental preparation, and concentration ability. The all-rounders had significantly higher imagery ability scores than the other two roles. ANOVA tests revealed that this difference was only significant at a 0.10 level of significance ($F=2.37$; $p=0.94$).

Table 2: Descriptive statistics and significant differences regarding the psychological skills among the different roles in cricket, as tested with Bulls' Mental Skills Questionnaire.

| Variable | | Mean | Std. | Minimum | Maximum | F- | p- |
|-------------------------------------|-------------|-------------|------------------|----------------|----------------|--------------|--------------|
| | | % | Deviation | % | % | value | value |
| Imagery ability | Batsman | 69.44 | 17.01 | 33.33 | 100.00 | 2.37 | .09** |
| | Bowler | 68.83 | 15.73 | 25.00 | 91.67 | | |
| | All-rounder | 75.68 | 13.38 | 50.00 | 100.00 | | |
| | Total | 71.32 | 15.14 | 25.00 | 100.00 | | |
| Mental preparation | Batsman | 65.83 | 15.36 | 37.50 | 100.00 | .25 | .78 |
| | Bowler | 69.10 | 14.69 | 29.17 | 95.83 | | |
| | All-rounder | 66.91 | 17.65 | 16.67 | 100.00 | | |
| | Total | 67.27 | 16.32 | 16.67 | 100.00 | | |
| Self-confidence | Batsman | 70.65 | 13.96 | 41.67 | 95.83 | .79 | .46 |
| | Bowler | 73.56 | 16.37 | 37.50 | 100.00 | | |
| | All-rounder | 75.49 | 15.58 | 41.67 | 100.00 | | |
| | Total | 73.23 | 15.41 | 37.50 | 100.00 | | |
| Anxiety and worry management | Batsman | 66.15 | 17.30 | 37.50 | 100.00 | .01 | .99 |
| | Bowler | 66.50 | 15.75 | 25.00 | 87.50 | | |
| | All-rounder | 66.67 | 21.38 | 25.00 | 100.00 | | |
| | Total | 66.10 | 18.99 | 25.00 | 100.00 | | |
| Concentration ability | Batsman | 69.33 | 18.67 | 29.17 | 100.00 | .25 | .78 |
| | Bowler | 73.00 | 16.50 | 37.50 | 100.00 | | |
| | All-rounder | 71.24 | 19.026 | 16.67 | 100.00 | | |
| | Total | 71.20 | 18.21 | 16.67 | 100.00 | | |
| Relaxation ability | Batsman | 64.00 | 16.31 | 33.33 | 87.50 | 1.40 | .25 |
| | Bowler | 69.87 | 15.82 | 33.33 | 100.00 | | |
| | All-rounder | 70.42 | 16.42 | 29.17 | 100.00 | | |
| | Total | 68.10 | 16.31 | 29.17 | 100.00 | | |
| Motivation | Batsman | 77.08 | 17.07 | 33.33 | 100.00 | 2.31 | .10 |
| | Bowler | 74.36 | 16.19 | 33.33 | 100.00 | | |
| | All-rounder | 81.86 | 13.59 | 37.50 | 100.00 | | |
| | Total | 77.76 | 15.34 | 33.33 | 100.00 | | |

*p<0.05; **p<0.10

The non-parametric analysis, however, did not confirm that this difference was significant and due to the relatively small base sizes of the different groups, these results were interpreted with caution. Imagery refers to the mental simulation of specified tasks or roles with the intent of mediating one's behaviour both cognitively and motivationally towards performance

attainment (Weinberg & Gould, 2011). Typically an all-rounder is considered an evenly skilled batsman and bowler, making him a more competent player of the game. Given the distinctive nature of batting and bowling in cricket, it may be fundamental for an all-rounder to be more skilled in imagery training in order to prepare both cognitively and motivationally for the bowling and batting roles that occur in a short space of time as in limited-overs cricket. Batting and bowling skills are intricate and require extensive training to master (Woolmer *et al.*, 2008). Gregg, Hall and Nederhof (2005), together with Weinberg and Gould (2011), asserted that such demanding functional cognitive tasks derive more valuable performance-enhancing effects from imagery training than do less cognitively demanding tasks. This most likely explains improved imagery ability in successful all-rounders compared to the other single-speciality role-players in cricket.

The all-rounders also reflected significantly higher motivation scores than the bowlers. ANOVA analysis indicated that this was not statistically significant. However, the non-parametric analysis scored this difference to be statistically significant at a 0.10 level of significance ($F=2.31$; $p=.104$). Due to the fact that the base sizes are small and normality cannot be assumed, the results of the non-parametric analysis will be accepted. This result is not surprising. Although speculative, it is reasonable to argue that all-rounders should have higher motivation levels owing to the multiple responsibilities they have in a match to contribute to the team's success or to maintain/improve their performance figures compared to exclusively specialised batsmen or bowlers. An all-rounder can experience a bad day with the bat in hand (batting) and still be able to redeem his day's performance with the ball in hand (bowling), whereas the other players cannot. Therefore, all-round play requires high levels of motivation, otherwise poor batting might affect bowling as the game proceeds or *vice versa*.

Conclusion and recommendation

The results of the study should be interpreted cautiously as the findings indicated only marginally significant differences. The collective results only revealed a partial relationship between psychological skills scores and specialised roles in cricket. Hence, in view of the observed tendencies, it may be presumed that cricketers who are equally skilled in batting and bowling (all-rounder) are somewhat more psychologically skilled than those who are exclusively classified as bowlers or batsmen.

Therefore, this study provides useful insight into the essential psychological competencies of all-rounders in cricket and also lends support to the notion of position-related psychological skill interventions in sport (Cox & Yoo, 1995; Sewell & Edmundson, 1996; Andrew *et al.*, 2007; Eloff *et al.*, 2011; Grobbelaar & Eloff, 2011). The study also corroborates the conception that other factors

such as physique, strength, speed, agility, technical and tactical skills are determinants of role-related success in cricket (Woolmer *et al.*, 2008). Future studies in cricket should consider evaluating the relationship between the number of all-rounders and a team's overall performance, as well as the comparison between the psychological skills of wicketkeepers with the rest of the roles and/or players.

A possible limitation of the study was not comparing homogenous groups of cricketers with each other. Kurt *et al.* (2012) emphasized the importance of comparing players' psychological qualities of same status e.g. amateur versus professional.

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116 Jooste, Toriola, van Wyk and Steyn

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The relationship between psychological skills and specialised role in cricket 117

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