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BOTSWANA TEAM SPORT PLAYERS' PERCEPTION OF COHESION AND IMAGERY USE IN SPORT

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ABSTRACT

Perception of cohesion and imagery use among 45 elite team sport players in Botswana were assessed with the Group Environment Questionnaire (Carron et al., 1985) and the Sport Imagery Questionnaire (Hall et al., 1998) to determine whether a relationship exists between the variables, and whether imagery use will significantly predict team cohesion. Results of the correlation analysis revealed a significant ($p<.05$) positive relationship between Attraction to Group-Social and Cognitive General Imagery. Significant positive relationships ($p<.05$) were also revealed between Individual Attraction to Group-Task and Cognitive Specific, Motivational Specific and Motivation General Arousal Imagery. The regression analysis revealed no significant ($p>.05$) composite effect of imagery use on cohesion, while a shared variance of 6.7% was recorded for both variables. Furthermore it was revealed that Motivational Specific and Cognitive General imagery use were significant ($p<.05$) predictors of cohesion as perceived by the team players. Findings further suggest that the cognitive and affective elements of perceived imagery and cohesion are reciprocally related on the basis of theories concerning the relationship between cognition and affect. The implications of these findings suggest that the team cohesion and imagery relationship could be used for team building and a team intervention tool with other cognitive variables.

Key words: Cohesion; Imagery; Perception; Team.

INTRODUCTION

Research on cohesion within the sport and exercise psychology context has been based on Carron's (1982) conceptual framework. Cohesion is defined as "a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives" (Carron, 1982:124). This conceptual framework remains widely influential to the contributions found in cohesion literature and has led to the development of a model by Carron *et al.* (1985) which assumes that each sport team develops perceptions of cohesiveness which are categorized as group integration (the perception of the team as a whole), and individual attractions to the group (the personal attractions to the group). Hardy *et al.* (2003) report that four dimensions accounted for the majority of the variance in team cohesion. These are Group-Integration-Task, Group-Integration-Social, Individual Attraction to Group-Task and Individual Attraction to Group-Social.

The two Group Integration dimensions reflect the individual's feelings about the closeness and bonding in the group as a whole in relation to the task or social perspective, while the two

individual attractions to group dimensions reflect the individual's feeling about involvement with the group from the task or social perspective. The four facets of cohesion according to Gill (2000), contribute to cohesiveness dynamically and collectively. As the cohesiveness of teams' changes over time, so do the members' perceptions of cohesiveness.

The facets of team cohesion were earlier operationalised by Carron *et al.* (1985) with the development of the Group Environment Questionnaire which has been used by researchers to assess the relationship between individual perception of team cohesion and athletes' self-reports of behaviour, as well as their actual behaviour.

Studies by Widmeyer and Martens (1978), Shangi and Carron (1987) and Widmeyer *et al.* (1990), have confirmed the positive relationship of players' perception of cohesiveness and success within basketball teams. Prapavessis and Carron (1997a) also reported that elite cricket players' perception of cohesion subscales of Group-Integration-Task, and Group-Integration-Social were positively associated with their self-reported conformity to group norms. It was also found that the subscale of Individual Attraction to Group-Task is a reliable predictor of the work output of elite athletes from different sports (Prapavessis & Carron, 1997b).

The quest by sport psychologists working with teams is to identify constructs that relate to performance in order to manipulate these constructs to improve performance (Lowther & Lane, 2002). However, one variable that has consistently influenced performance positively is imagery. As a cognitive process, imagery use is dynamic and state-like in nature and would be positively associated with perception of team cohesion which is a dynamic process (Munroe *et al.,* 1998). Imagery is seen as an experience that mimics real experience (White & Hardy, 1998).

Imagery is a psychological activity recreating the physical properties of an object, person or peace that is out of personal perception and is considered to be the most popular performance enhancement technique because of its versatility in effecting several different outcomes (Denis, 1985; Short *et al*., 2006). Paivio (1985) has proposed a conceptual framework which explains the mediating role of imagery through cognitive and motivational mechanisms which affect specific or general response systems. The Cognitive General (CG) dimension involves imaging any combination of movements, whereas the Cognitive Specific dimension (CS) involves imaging the execution of specific skills (Strachan & Munroe-Chandler, 2006). The Motivational Specific dimension (MS) involves imaging goals such as winning or receiving a medal while the Motivation General (MG) dimension is related to physiological arousal and affect stemming from various sport situations (Law *et al.,* 2006; Short *et al.,* 2006). Hall *et al.* (1998) have expanded upon Paivio's framework by further separating the Motivation General (MG) functions into Motivation General-Arousal (MGA) imagery, which involves feelings of being relaxed or psyched up and Motivation General-Mastery (MGM) imagery, which involves imaging feelings of confidence and mental toughness.

The Sport Imagery Questionnaire (SIQ) developed by Hall *et al.* (1998) based on Paivio's (1985) conceptual framework is used to assess the frequency with which athletes use images representative of different imagery types. The composite use of the SIQ has revolutionalised studies on imagery, especially with psychological constructs such as sport confidence and

self-efficacy (White & Hardy, 1998; Callow & Hardy, 2001; Abma *et al.,* 2002), anxiety (Monsma & Overby, 2004) and team cohesion (Hardy *et al.,* 2003).

An explanation can be proposed theoretically for the dynamic nature of imagery as it increases imagery vividness among athletes, similar to the dynamic nature of cohesiveness. Actions in a sport situation facilitate imagery through representational updating. Specifically, the use of a mental model helps people (i.e. team players) to imagine how one movement causes another movement within a physical situation (Baddeley & Andrade, 2000). It also helps the team players convert their bodily actions into updated images. As vividness of imagery use in sport reflects the richness of the representation displayed in the short-term memory, the dynamic process of imagery may aid the updating of the representation displayed in the memory, and thereby improve the vividness of imagery for improved team performance.

Hypothetically, imagery use in team sport according to Shearer *et al.* (2007), is perceived to be beneficial for imaging team strategies and plays, the same way it has been found to have a positive effect on individual perceptions of collective efficacy. Team players with very strong perceptions of team cohesion will devote a considerable time to imaging team techniques that will be significant to the success of the team. Hardy *et al.* (2003) has predicted that team players possessing higher perceptions of task cohesion would report greater use of both Cognitive Specific (CS) and Cognitive General (CG) types of imagery, while high task cohesion was expected to lead to greater use of Motivation Specific (MS) and Motivation General-Mastery (MG-M). Also, team players with a vivid perception of social cohesion utilize Motivation General-Arousal imagery (MGA) more, given the fact that it represents the player's affective feedback within their sport context. Attraction to the group task and social as expressed by the team players are apparently expected to have stronger relationships with the team players' imagery use than the group task and social as manifested with the cohesion of the team.

It is in the light of the above, that this study examines the relationships of the team sport players' perception of cohesion and imagery in sport. It further examines whether the five imagery subscales will significantly predict cohesion of team players.

METHODS

Participants

The sample for this study consists of 45 male elite players in volleyball, football and basketball (15 participants for each sport) from Botswana. They have participated in their sports both at the national and international levels. Their ages range from 19 to 26 years (M=22.50; SD=1.32). All the participants had gone through imagery training sessions in the past and have had at least a one year playing experience at the elite level.

Measures

The Group Environment Questionnaire (GEQ) is an 18-item questionnaire developed by Carron *et al.* (1985) which assess individual attraction to group task, individual attraction to

group social, group integration task as well as group integration social. The questionnaires were completed by the participants in order to measure team cohesion. Participants responded on a 9-point Likert Scale anchored at the extremes by "strongly disagree" (1) and "strongly agree" (9). Larger scores reflect stronger perceptions of cohesiveness. The task construct refers to a general orientation towards achieving the group's goals and objectives, whereas the social orientation is focused on developing and maintaining social relationships within the group. The group integration construct represents the closeness, similarity and bonding within the group as a whole. Conversely, the individual attractions to group represent the interaction of the motives working on the individual to remain in the group. The subscale of team cohesion assessed were (ATG-T; 4 items), (ATG-S, 5 items), (GI-T; 5 items) and (GI-S; 4 items). Previous studies by Carron *et al.* (1985) and Brawley *et al.* (1987) have demonstrated that the questionnaire has adequate internal consistency with alpha coefficients ranging from 0.64 to 0.76. The GEQ subscales in this study demonstrated adequate internal consistency with alpha coefficients ranging from 0.66 to 0.77.

The second questionnaire used for this study is the Sport Imagery Questionnaire (SIQ) developed by Hall *et al.* (1998) to measure imagery functions in sport. This questionnaire consists of 30 items with five subscales of Cognitive General (CG), Cognitive Specific (CS), Motivational Specific (MS), Motivation General-Mastery (MGM) and Motivation General-Arousal (MGA). Each imagery function consists of 6 items and the items are rated on a 7-point Likert Scale ranging from "rarely" (1) to "often" (7). The scores for the subscales are calculated as the sum of the item scores from that subscale. Previous research have shown acceptable internal consistency for the SIQ subscales ranging from 0.68 to 0.90 (Hall *et al.,* 1998; Abma *et al.,* 2002; Shearer *et al.,* 2007; Adegbesan, 2009). The Motivation General-Arousal subscale recorded the smallest alpha value of 0.68 in this study, but the instrument still demonstrated a sufficiently high degree of internal consistency with coefficient alphas ranging from 0.68 to 0.89.

Procedure

Permission was sought from the ethical committee and team officials to conduct the study. The consent of the participants was also obtained. The researcher and the research assistants explained the study to the participants. The Group Environment Questionnaire and the Sport Imagery Questionnaire were then administered to the participants during one of their training sessions in a group setting. They were assured of the confidentiality of their responses prior to data collection.

Analysis

The Statistical Package for the social sciences (SPSS) was used for the analysis of the data. The internal consistency for the GEQ and the SIQ was done using the Cronbach alpha coefficient. The descriptive statistics of mean and standard deviation were also utilized. The Pearson correlation coefficient was used to determine the relationships between the team sport player's perception of cohesion and imagery use in sport, while the multiple regression analysis was used to examine whether the five imagery subscales will significantly predict cohesion of team players.

RESULTS

Descriptive statistics of mean and standard deviation were calculated for the subscales of team cohesion and imagery as presented in table 1. The mean values for cohesion ranged from 13.5 to 28.6, while the mean values for imagery ranged from 28.4 to 35.7. Internal consistency for the imagery and cohesion subscales were also calculated using the Cronbach alpha coefficient as presented in table 1. Alpha values ranging from 0.66 to 0.77 were reported for cohesion. Individual Attraction to the Group-Social recorded the smallest alpha value of 0.66. This value was considered to be moderate and was not deleted from the present study in comparison to the study by Hardy *et al.* (2003) in which an alpha value of 0.59 was recorded for Individual Attraction to the Group-Social and was subsequently deleted and did not form part of the final analysis. Pearson correlation was computed to show the relationships between the cohesion and imagery subscales as presented in the matrix in table 1. Attraction to Group-Social and Cognitive General (CG) revealed a significant relationship (r=0.69), while Individual Attraction to Group-Social also revealed a significant relationship (r=0.60) with cognitive Specific imagery (CS). The matrix table also shows significant perceptions of the relationships of Individual attraction to Group-Task and imagery types of Cognitive Specific (CS) (r=0.61), Motivational Specific (MS) (r=0.64) and Motivation General-Arousal (MGA), (r=0.59) respectively.

TABLE 1: **CORRELATION MATRIX, MEAN, STANDARD DEVIATION AND CRONBACH ALPHA COEFFICIENT OF THE GEQ AND THE SIQ**

Subscales	Cronbach alpha	M	SD	ATGT	ATGS	GIT	GIS	CS	CG	MS	MGM	MGA
ATGT	0.70	13.5	6.23	…	.58**	-.34*	.59**	.32*	-. 21	.61**	.51*	-.20
ATGS	0.66	22.5	5.73		…	.49*	.60**	.47*	.69**	.41*	.28*	.31**
GIT	0.72	28.6	5.68			…	.52*	.61**	.58**	.64**	.49*	.59**
GIS	0.77	17.6	5.66				…	.56*	.60**	.49*	.58**	.62**
CS	0.81	30.9	7.53					…	.55*	.46*	.63**	.51*
CG	0.74	28.4	9.92						…	.52*	.47*	.64**
MS	0.89	35.7	6.99							…	.66**	.62**
MGM	0.76	28.5	10.2								…	.57*
MGA	0.68	34.8	7.56									…

Note: Individual attraction to Group task=ATGT; Individual attraction to Group social=ATGS; Group Integration Task=GIT; Group Integration Social=GIS; Cognitive Specific=CS; Cognitive General=CG; Motivational Specific=MS; Motivation General Mastery=MGM; Motivation General Arousal=MGM.

** p<.01 = Significant

* p<.05 = Significant

TABLE 2: **COMPOSITE EFFECT OF IMAGERY ON COHESION SHOWING THE ANOVA SUMMARY OF THE REGRESSION ANALYSIS**

Model	Sum of Square	Mean	Df	F	Sig
Regression	909.796	181.959	5		
Residual	4350.204	111.544	39	1.63	0.175
Total	5260.000		44		

R=.416

R^2=.173

Adj R^2=.067

Standard Error=10.561

A shared variance of 6.7% was also recorded for the imagery and cohesion variables. The composite effect of the athletes' perception of imagery use was not statistically significant ($F(5, 44) = 1.63$; $p>.05$).

The results of regression analyses conducted for the cohesion and imagery subscales is shown in table 3. The cohesion subscales served as the criterion variables, while the imagery subscales were the predictor variables. The use of Cognitive General ($t=2.31$; $df=5.39$; $p<.05$) and Motivational Specific ($t=2.84$; $df=5, 39$; $p<.05$) imagery functions could significantly predict changes in perceptions of team cohesion.

TABLE 3: **PARAMETER ESTIMATE OF THE RELATIVE CONTRIBUTION OF IMAGERY TYPES ON COHESION**

Subscales	Unstandardized Coefficient		Standardized Coefficient	t	Sig
	β	Standard Error	Beta		
(Constant)	59.570	8.763		6.798	.000
Cognitive Specific	.053	.293	.037	.181	.857
Cognitive General	.172	.210	.157	2.31	.041*
Motivational Specific	.634	.455	.406	2.84	.026*
Motivation General Mastery	.078	.223	.073	1.62	.066
Motivation General-Arousal	.027	.374	.019	.072	.943

* Significant at $p<.05$

DISCUSSION

This study examined, firstly, the relationship between team cohesion and imagery use in sport as perceived by the team sport players and secondly, whether imagery use can significantly predict cohesion in team sport. The relationship between cohesion and imagery subscales as reflected in this study is apparent because the cognitive process of imagery helps to enhance individual performances that are beneficial to the overall performance of a team.

The results suggest that Attraction to Group-Social and Individual Attraction to Group-Task have significant moderate relationships with Cognitive General (CG) and Cognitive Specific (CS) imagery respectively. The Individual Attraction to Group-Task was also shown to be significantly related to Cognitive Specific (CS), Motivational Specific (MS) and Motivation General- Arousal (MGA) imagery respectively.

The significant prediction reported for both Cognitive General (CG) and Motivational Specific (MS) imagery on cohesion is peculiar with the fact that performing basic skills in sports is always done in a coordinated form which is crucial for good team performance (Martin Ginis *et al*., 1999; Hall, 2001). Every member learns that the team must be united more often because of the fact that imagery is practiced in a team context. Furthermore, there

is always a mounting pressure as the competitive season progresses for every team member to practice both physically and mentally, as effectively as possible for the benefit of the whole team (Hardy *et al.,* 2003). As the team players' perception of their task increases, so does the probability of an increase in motivation for unity in the use of imagery to be rehearsed for the various skills needed for team success.

The appraisal of a team player's group belongingness takes place both cognitively and affectively. The cognitive aspect relates to the information the player has accumulated concerning his sport experiences within the team and with the team members. The affective aspect concerns feelings about the sport experiences of the player. In other words, based on the theories concerning the relationship between cognition and affect, the cognitive and affective elements of both perceived imagery and cohesion are expected to be reciprocally related.

The positive association of both imagery and cohesion are not only vital for the closeness and bonding of the team members, but also for the realization of the cognitive and motivational functions of imagery which gives support to the teams' short-term and long-term goals.

CONCLUSION

Most experiences associated with sport occur in group settings including the use of imagery considering the fact that people will devote considerable cognitive processing to interpersonal interaction and relationships. This study examined the relationship between Botswana team sport athletes' perception of team cohesion and imagery use in sport. The examination of these relationships revealed that the athletes perceived the use of Motivational Specific and Cognitive General imagery functions as significant predictors of team cohesion. Also the positive relationships established between the elements of both team cohesion and imagery as revealed in this study, stresses the fact that perception of togetherness can influence cognitions which are beneficial to the sport teams. Sport Psychology is a discipline in which cohesion and imagery are unquestionably important. A theory driven approach to the study of these two dynamic psychological constructs has yielded meaningful findings in Sport Psychology literature. Therefore, social cognitive variables such as sport confidence, collective efficacy and cognitive anxiety in team sport setting should be examined in future studies along with imagery and cohesion using both the individual and team players as a unit of analysis.

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