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Author name : Sage, Luke and Kavussanu, M.
Title: Goal orientations, motivational climate and moral behaviour in youth soccer: exploring their temporal stability and reciprocal relationships
Article & version: Postprint (after peer reviewed)
Original citation: Sage, Luke and Kavussanu, M. (2008) Goal orientations, motivational climate and moral behaviour in youth soccer: exploring their temporal stability and reciprocal relationships, in *Journal of sports sciences* 26 (7), 717-732
DOI: 10.1080/02640410701769716

Publication website: http://dx.doi.org/ 10.1080/02640410701769716

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Journal of Sports Sciences
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713721847

Goal orientations, motivational climate, and prosocial and antisocial behaviour in youth football: Exploring their temporal stability and reciprocal relationships

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First Published on: 13 February 2008
To cite this Article: Sage, Luke D. and Kavussanu, Maria (2008) 'Goal orientations, motivational climate, and prosocial and antisocial behaviour in youth football: Exploring their temporal stability and reciprocal relationships', Journal of Sports Sciences, 26:7, 717 - 732
To link to this article: DOI: 10.1080/02640410701769716
URL: http://dx.doi.org/10.1080/02640410701769716

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Journal of Sports Sciences, May 2008; 26(7): 717 – 732

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Goal orientations, motivational climate, and prosocial and antisocial behaviour in youth football: Exploring their temporal stability and reciprocal relationships

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(Accepted 25 October 2007)

Abstract
In this study, we examined the temporal stability and reciprocal relationships among task and ego orientation, task- and ego-involving climates, and prosocial and antisocial behaviour in youth football. Male ($n = 156$) and female ($n = 24$) footballers (mean age 14.1 years, $s = 1.8$) completed questionnaires towards the beginning and end of a regular season. Questionnaires measured goal orientation, perceived motivational climate, and frequency of prosocial and antisocial behaviours. Structural equation modelling indicated moderate covariance stability between the beginning and end of the season. Subsequent analyses revealed a significant decrease only in perceptions of task-involving climate. In the cross-lagged analyses, prosocial behaviour at the beginning of the season positively predicted task-involving climate at the end of the season. Antisocial behaviour at the beginning of the season positively predicted both ego orientation and ego-involving climate at the end of the season and a reciprocal relationship was revealed whereby ego orientation at the beginning of the season positively predicted antisocial behaviour at the end of the season. Task orientation at the beginning of the season negatively predicted ego-involving climate at the end of the season. All cross-lagged relationships were weak. This exploratory study offers limited support for bi-directional relationships between personal, environmental, and behavioural variables but provides useful insight into the covariance stability, change, and interrelationships between motivational and moral constructs over a competitive season.

Keywords: *Task and ego goals, task and ego-involving climate, morality*

Introduction

The integrity of sport has been suggested to be lacking in morality (e.g. Kohn, 1986) and such accusations have led to an expanding line of research on morality in sport (e.g. Kavussanu, 2006; Kavussanu & Spray, 2006; Sage, Kavussanu, & Duda, 2006). Methods of enquiry, however, rely on cross-sectional designs that are limited in their conclusions on change or the direction of causality in the relationships between variables. The reliance on snapshot studies has restricted holistic models of moral behaviour that include motivational characteristics of the athlete and the sporting environment. The present study is a first step towards investigating a triciprocal model linking dispositional motivation, motivational climate, and prosocial and antisocial behaviour over a youth football season.

Although sport has been rebuked as a breeding ground for antisocial behaviour (e.g. Ogilvie & Tutko, 1971), its traditional purpose was to encourage positive virtues of loyalty, fairness, and cooperation. To account for both positive and negative dimensions of morality, Bandura's (1986, 1991, 1999) social cognitive theory provides the framework for the moral variables in this study. Within this theory, behaviour is judged as reprehensible using multidimensional rules or standards. Among the many factors that influence this judgement are the consequences of the action, whether it causes personal injury, and whether it is directed at individuals. According to Bandura (1991), the exercise of moral agency has dual aspects, proactive and inhibitive. The proactive dimension is the power to behave humanely and is represented in this study by prosocial behaviour. Prosocial behaviours have been defined as behaviours that benefit another individual or group of individuals (Eisenberg & Fabes, 1998). For instance, helping an opponent off the floor and congratulating an opponent on good

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ISSN 0264-0414 print/ISSN 1466-447X online © 2008 Taylor & Francis
DOI: 10.1080/02640410701769716

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play are prosocial behaviours encountered in sport. In contrast, the inhibitive aspect of morality is the power to refrain from behaving inhumanely and is represented in this study by antisocial behaviour. Antisocial behaviours refer to actions that harm or disadvantage the recipient (Sage *et al.*, 2006). Examples of antisocial behaviours in sport include deliberately trying to injure an opponent, time wasting, obstructing an opponent, and goading opposition players.

Although past work has inferred high levels of morality from low scores on antisocial measures (e.g. Kavussanu & Roberts, 2001; Ommundsen, Roberts, Lemyre, & Treasure, 2003), overlooking the prosocial or proactive aspect provides an incomplete account of morality. Previous studies have shown prosocial and antisocial behaviour to be unrelated (Sage *et al.*, 2006), suggesting that high levels of prosocial behaviour do not imply low levels of antisocial behaviour or vice versa. Moreover, research suggests that the proactive and inhibitive aspects of morality may have their own motivational and cognitive regulators. For example, prosocial behaviour has been positively predicted by task orientation (Kavussanu, 2006) and social affiliation (Sage & Kavussanu, 2007), whereas antisocial behaviour has been positively predicted by ego orientation (Kavussanu, 2006; Kavussanu & Roberts, 2001) and social status orientation (Sage & Kavussanu, 2007). Differential prediction of the dual aspects of morality justifies the inclusion of both prosocial and antisocial behaviour in the current study, for a more complete understanding of morality in sport.

Attempts to further our knowledge of moral behaviour have focused on linking morality to characteristics of the individual or environment. Theoretical models of moral or prosocial behaviour include individual characteristics of motivation (Rest, 1984) or personal goals (Eisenberg, 1986). A social-environmental characteristic that is thought to influence moral behaviour is the contextual goal structure created by significant others (Shields & Bredemeier, 1995), known as the motivational climate (Ames, 1992). Investigating both individual motivation and motivational climate embodies an interactional approach (e.g. Shoda, 1999) to the study of behaviour. Previous work (e.g. Kavussanu & Roberts, 2001; Ommundsen *et al.*, 2003; Sage *et al.*, 2006) has focused on predicting behaviour from motivational variables; however, social cognitive theory (Bandura, 1986) explains behaviour within a model of triciprocal causation. In this theory, internal personal factors (i.e. cognitive events), behavioural patterns, and environmental events (i.e. interaction with significant others) all operate as interacting determinants that influence one another bi-directionally. Despite Bandura (1999) globalizing personal and environmental concepts, the appreciation of motivational factors is prevalent within his theory. Before reflecting on the nature or direction of the relationships between individual, environmental, and behavioural variables, the concepts of motivation and motivational climate are introduced.

To explain athletes' morality, research has used motivational theories and in particular Nicholls' (1989) achievement goal theory (e.g., Duda, Olson, & Templin, 1991; Dunn & Causgrove-Dunn, 1999; Kavussanu & Roberts, 2001; Sage *et al.*, 2006; Stuntz & Weiss, 2003). The rubric of achievement goal theory is that in achievement contexts such as sport, individuals strive to attain competence. The judgement of competence is determined by an individual's interpretation of success, which is reflected by their goal orientations (Nicholls, 1989). According to achievement goal theory, the expression of goals varies according to a combination of personal and situational factors. The degree of involvement in the respective goals is a function of dispositional goals together with the motivational climate shaped by significant others (Ames, 1992). Both goal orientations and motivational climate are included in the present study to represent personal and situational factors, respectively.

The personal variables, or individual characteristics, that are examined in this study are the central constructs within Nicholls' (1989) achievement goal theory. Nicholls asserted that individuals are motivated by two orthogonal goal orientations. Ego orientation is the tendency to perceive competence and evaluate success relative to others, with the activity seen as a means to an end. An ego-orientated athlete is concerned with the demonstration of superiority over others. Theoretical links have been made between ego orientation and a possible lack of concern for justice, fairness, and welfare of competitors (Nicholls, 1989). Task orientation is the tendency to perceive competence and evaluate success using self-referenced criteria; here the athlete is concerned with skill improvement and the activity itself, rather than any end product. Task orientation has been linked with a concern for fair play (Duda *et al.*, 1991).

In support of the theory, empirical evidence has emerged that confirms the links between task and ego orientation and moral variables. Research has shown that ego orientation corresponds to low levels of moral functioning, a term that embraces moral judgement, intention, and behaviour (Kavussanu & Ntoumanis, 2003; Kavussanu & Roberts, 2001). Ego orientation has also been associated with the endorsement of unsportsmanlike play (Duda *et al.*, 1991), judging aggressive acts as legitimate (Duda *et al.*, 1991; Kavussanu & Roberts, 2001), the

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legitimacy of and intention to engage in unsportsmanlike play (Stuntz & Weiss, 2003), antisocial judgement (Sage *et al*., 2006), and antisocial behaviour (Kavussanu, 2006; Sage *et al*., 2006). Very few studies have measured reported behaviours and examined the proactive dimension of morality. Concerning this aspect, ego orientation negatively predicted prosocial behaviour (Kavussanu, 2006) and has been negatively related to some dimensions of sportspersonship (Dunn & Causgrove-Dunn, 1999; Lemyre, Roberts, & Ommundsen, 2002). Overall, ego orientation appears to be positively associated with antisocial variables and negatively related to prosocial variables and sportspersonship.

Compared with ego orientation, the findings for task orientation are less clear. Task orientation has emerged as a positive predictor of prosocial behaviour (Kavussanu, 2006; Sage & Kavussanu, 2007) and sportspersonship (Dunn & Causgrove-Dunn, 1999; Lemyre *et al*., 2002), corresponded to high levels of moral functioning (Kavussanu & Ntoumanis, 2003), and has been negatively related to antisocial behaviour (Kavussanu, 2006) and unsportsmanlike attitudes (Duda *et al*., 1991; Stuntz & Weiss, 2003). Task orientation has been shown to positively predict prosocial judgement at low levels of ego orientation (Sage *et al*., 2006). No significant associations, however, have been found between task orientation and legitimacy judgements (Duda *et al*., 1991; Dunn & Causgrove-Dunn, 1999), self-reported likelihood to aggress against an opponent (Stephens, 2000, 2001; Stephens & Bredemeier, 1996), indices of moral functioning (Kavussanu & Roberts, 2001) or prosocial and antisocial functioning (Sage *et al*., 2006). It can be concluded from this research that a main effect for task orientation on moral variables is apparent in some samples and contexts but not others.

Following the investigation of goal orientations, research progressed to investigating athletes' perceptions of the sporting environment in relation to moral variables. Shields and Bredemeier (1995) have identified motivational climate as a contextual influence on an individual's sporting morality. Motivational climate has been distinguished into mastery (or task-involving) and performance (or ego-involving) climates (Ames, 1992). Mastery climate is salient when significant others (e.g. coach) create an environment in which success and failure are defined in terms of skill mastery and individual improvement. A performance climate is salient when significant others create an environment in which success and failure are defined in normative terms, with an emphasis on outperforming team-mates and opponents. In this study, the terms ''task-involving'' and ''ego-involving'' will be used to refer to the two types of motivational climate. As the effects of motivational climate occur through individuals' perceptions, sport psychology research has typically examined the *perceived* motivational climate. In line with Nicholls' (1989) tenet of ego orientation leading to a lack of concern about justice and fairness, similar consequences are expected with an ego-involving climate.

The relationship between motivational climate and moral variables has been supported empirically. Perceived ego-involving climate in youth football has been linked to low levels of sportspersonship (Miller, Roberts, & Ommundsen, 2004; Ommundsen *et al*., 2003) and moral functioning (Kavussanu & Spray, 2006; Ommundsen *et al*., 2003), antisocial behaviour (Kavussanu, 2006), and acceptance of rough play and cheating (Boixadós, Cruz, Torregrosa, & Valiente, 2004). However, no relationships were found between ego-involving climate and moral functioning of collegiate basketball players (Kavussanu, Roberts, & Ntoumanis, 2002) or sportspersonship of female volleyball players (Gano-Overway, Guivernau, Magyar, Waldron, & Ewing, 2005). In contrast, a perceived task-involving climate in youth footballers has been linked to prosocial behaviour (Kavussanu, 2006) and sportspersonship (Miller *et al*., 2004; Ommundsen *et al*., 2003). Furthermore, a task-involving climate has been positively related to the sportspersonship dimension of respect for the game in female volleyball players (Gano-Overway *et al*., 2005). No relationships were observed between a task-involving climate and indices of moral functioning (Ommundsen *et al*., 2003). Collectively, the research indicates relationships between ego-involving climate with antisocial variables and task-involving climate with prosocial behaviour and sportspersonship.

Having established unidirectional relationships between motivational and moral variables, a further stage of inquiry is to investigate the covariance stability, mean changes, and proposed reciprocal relationships between these variables. A collective limitation of previous studies is their cross-sectional design. Conclusions on the temporal stability, change, and direction of the relationships between goal orientations, motivational climate, and moral indices require longitudinal designs. Although support is offered for the prediction of moral variables from goal orientations and motivational climate, any covariance stability, mean change or potential reciprocal relationships in the variables over time have been largely overlooked.

One advantage of longitudinal research is the ability to explore covariance stability and mean changes in the variables over time. A solitary study has explored changes in motivation and sportspersonship over the course of a 5-month ice-hockey

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season (Vallerand & Losier, 1994). Findings revealed a significant decrease in sportspersonship and self-determined motivation from the beginning to the end of the season. The decrease in levels of these variables was suggested to have been triggered by the highly competitive context. This competitiveness is expected to peak towards the end of the season when the focus on outcomes is at its greatest. In a study measuring goal orientations over a competitive female softball season, task and ego orientation were higher in the early-season compared with late-season (Williams, 1998). However, the lack of statistical support for any differences in goal orientations detracts from the importance of these findings. A further study on children engaged in physical activity classes found decreases in task and ego orientation only when participants were grouped according to the compatibility of their goal orientations with the motivational climate (Gano-Overway & Ewing, 2004). In both studies on goal orientations, early- season/semester task and ego orientation moderately predicted their late-season counterparts, indicating covariance stability. No studies have been conducted on the stability of motivational climate or morality.

In models of moral (Rest, 1984) and prosocial (Eisenberg, 1986) behaviour, feedback and feedforward loops between components are included. These loops, coupled with Bandura's (1986) model of triciprocal causation, indicate bi-directional relationships between personal, environmental, and behavioural variables. In the present study, prosocial and antisocial acts represent the behavioural variables, while the motivational variables of goal orientations and perceived motivational climate have been assimilated to the hypothesized interrelationship between personal and environmental variables. Over time, task-involving climates have been suggested to foster task orientation and ego-involving climates to foster ego orientation (Ames, 1992). Any reciprocal effects of goal orientations on perceptions of the motivational climate or behaviours on motivational variables have yet to be fully investigated.

Longitudinal studies of motivational and moral variables are scarce. Vallerand and Losier (1994) proposed that over time cheating and unsportsmanlike behaviour could cause athletes to focus on outdoing others rather than surpassing oneself, thereby influencing their self-determined motivation. Expectations of a positive bi-directional relationship between sportspersonship orientations and motivation were confirmed using a cross-lag correlational design (Vallerand & Losier, 1994). Subsequent regression analysis, however, only confirmed a path from early-season motivation to late-season sportspersonship over a 5-month period. Preliminary work exploring bi-directional relationships between motivation and sportspersonship has therefore been inconclusive.

Longitudinal studies on the relationships between goal orientations and perceived motivational climate have only explored the effect of the climate and early-season goal orientations on late-season goal orientations (Gano-Overway & Ewing, 2004; Williams, 1998). Williams (1998) found that late-season task orientation was most strongly predicted by a perceived task-involving climate, followed by early-season task orientation and, unexpectedly, an ego-involving climate. Late-season ego orientation was only significantly predicted by early-season ego orientation. Gano-Overway and Ewing (2004) showed that late-semester task orientation was predicted by early-semester task orientation and a task-involving climate measured at the end of the semester. Late-semester ego orientation was predicted by early-semester ego orientation and a late-semester ego-involving climate. Additional longitudinal evidence is required to substantiate any bi-directional relationships between goal orientations, motivational climate, and moral variables.

In light of the previous work on motivation and morality in sport, the aim of the present study was to investigate the relationship between goal orientations, perceptions of motivational climate, and prosocial and antisocial behaviour at the beginning and end of a regular youth football season. The study had three purposes, the first of which was to ascertain the covariance stability of the variables across a 6-month season. Covariance stability is reflected in the covariance of a variable with itself over two points in time (Hertzog & Nesselroade, 1987) and will be examined in Model 1; this model is largely exploratory and only one hypothesis was offered: Based on the dispositional nature of task and ego orientation and past work (e.g. Gano-Overway & Ewing, 2004; Williams, 1998), goal orientations were expected to be stable over the season.

The second purpose was to examine changes in mean values of the variables. Guided by the finding of a drop in sportspersonship over a season (Vallerand & Losier, 1994), prosocial behaviour was expected to decrease across the season while antisocial behaviour was expected to increase. No changes were expected in the goal orientations. As task- and ego-involving climates have yet to be tested over time, no predictions were made in relation to these variables.

The third purpose, represented by Models 2a and 2b, was to assess interrelationships between the variables over time. Results from cross-sectional studies led to expectations that task orientation and a perceived task-involving climate at the beginning of the season would be positively linked to prosocial behaviour at the end of the season. Conversely, ego

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orientation and a perceived ego-involving climate at the beginning of the season were expected to be positively linked to antisocial behaviour at the end of the season. Previous research has been dominated by cross-sectional studies that give no indication of the direction of the relationships between the motivational goal orientations, motivational climate, and moral behaviours. However, theoretical offerings (e.g. Ames, 1992; Bandura, 1986, 1999; Eisenberg, 1986; Rest, 1984) coupled with one longitudinal study (Vallerand & Losier, 1994) suggest the potential of bi-directional relationships between the personal, environmental, and behavioural variables. Thus, in the hypothesized model, all expected relationships between the goal orientations, motivational climates, and prosocial and antisocial behaviour were explored reciprocally to identify the nature of any links between the variables (see Figure 1). Prosocial behaviour at the beginning of the season was expected to be positively related to task orientation and perceived task-involving climate at the end of the season. Antisocial behaviour at the beginning of the season was expected to be positively related to ego orientation and perceived ego-involving climate at the end of the season. In addition to the noted positive relationships, past research also indicates potential negative relationships (e.g. Kavussanu, 2006; Ommundsen *et al*., 2003). Antisocial behaviour at the beginning of the season should be negatively linked to task orientation and perceived task-involving climate at the end of the season. In contrast, prosocial behaviour at the beginning of the season should negatively predict ego orientation and perceived ego-involving climate at the end of the season. Finally, positive reciprocal relationships were expected between task orientation and task-involving climate as well as between ego orientation and ego-involving climate.

Methods

Participants

In total, 319 youth footballers (243 males, 76 females; mean age 14.0 years, $s = 1.7$) were recruited at the beginning of the season. Absentees at the end of the season ($n = 136$) and outliers ($n = 3$) were removed to leave 180 participants (156 males, 24 females) in the final analyses. The ages of these 180 participants ranged from 11 to 18 years (mean 14.1 years, $s = 1.8$). [Nicholls (1989) suggests that around the age of 12 children are able to differentiate

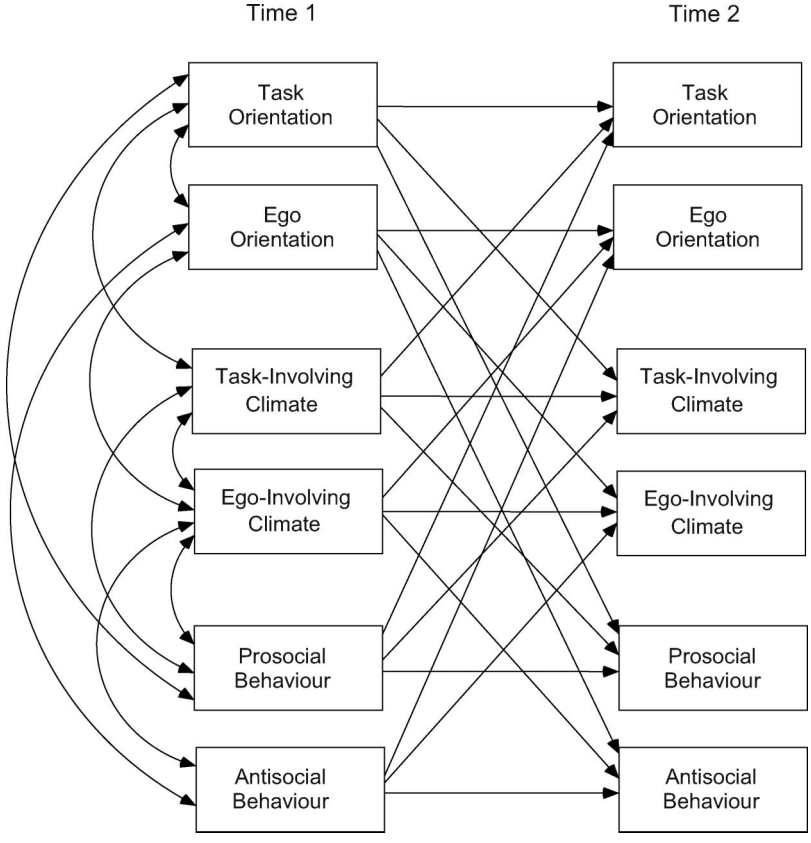

Figure 1. Hypothesized model of the interrelationships among goal orientation, perceived motivational climate, and moral behaviour.

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between effort and ability, two concepts closely related to task and ego orientation. However, Fry (2000) found no significant differences between 13-, 12-, and 11-year-olds in their level of understanding of luck and ability in the physical domain. Moreover, although six participants in the present study were younger than 12 at the beginning of the season, all had turned 12 by the end of the season. Therefore, we chose to retain these six participants in our study.]

The ethnicity of players was predominantly white European ($n = 153$), but children of other races were included ($n = 27$). Participants were recruited from competitive club ($n = 7$) and school ($n = 22$) teams based in the Midlands, UK. The majority of the final pool of players ($n = 150$) reported playing both school (team) and club football at various standards of competition, from local league to elite. Competitive football experience ranged from 1 to 13 years (mean 4.98 years, $s = 2.8$), while time spent playing football ranged from 1 to 20 h per week (mean 7.84 $h \cdot week^{-1}$, $s = 5.21$).

Procedure

After receiving approval for the study by the School of Sport and Exercise Sciences Ethics Committee, coaches ($n = 15$) and teachers ($n = 15$) were contacted by letter, and follow-up telephone calls established their interest in study participation. On agreement from the schools ($n = 11$) and clubs ($n = 7$), parental consent forms were forwarded and distributed to prospective participants under the age of 16 ($n = 255$) as required by the British Psychological Society. Meetings were arranged with the relevant coach or teacher to coincide with a practice session when players were available to complete a 10- to 15-min questionnaire.

The primary investigator visited the clubs and schools on two separate occasions. The first data collection was conducted at the start of the youth football season (October to November). A minimum of two games were played before this data collection took place to allow perceptions of the motivational climate to be established; as teams typically train for at least four sessions before the competitive season starts, the motivational climate should have been established by the first time of data collection. Moreover, most participants ($n = 144$) had the same coach for at least one season and for these participants, perceptions of the motivational climate should have been established from previous seasons.

A second visit to clubs and schools was made 6 months later when the season was drawing to a close (April to May). The content and distribution of the questionnaires were identical for each data collection. The questionnaire included items assessing demographic information, goal orientation, perceived motivational climate, and prosocial and antisocial behaviours specific to football. A cover sheet included full written instructions, a guarantee of anonymity, and a consent form. After consenting to the study, participants were encouraged to respond honestly and on their own. The investigator prevented conferring between participants and was available to answer any queries. Collection of the questionnaires was undertaken immediately upon completion when gratitude was expressed to the respondents for their time and effort.

Measures

Goal orientations. Task and ego goal orientations were measured with the Perception of Success Questionnaire (POSQ; Roberts, Treasure, & Balague, 1998). The scale was adapted to the context of football by using the stem ''When playing football I feel most successful when...''. The measure consists of two 6-item subscales assessing task orientation (e.g. ''I work hard''; ''I overcome difficulties'') and ego orientation (e.g. ''I am clearly superior''; ''I am the best''). Participants responded on a Likert scale with the choices being 1 (*strongly disagree*), 2 (*disagree*), 3 (*neutral*), 4 (*agree*), and 5 (*strongly agree*). Mean scores for the two subscales were calculated separately by adding scores for related items and dividing by 6 (i.e. the number of items). The POSQ has demonstrated adequate internal consistency with satisfactory alpha coefficients for both the task ($\alpha = 0.88$) and ego ($\alpha = 0.88$) subscales (Roberts *et al.*, 1998). In this study, similar reliabilities were achieved for each subscale (see Table I). The POSQ has been criticized on the grounds that it measures hypothesized behavioural correlates, such as effort, rather than goal orientations *per se* (Harwood, Hardy, & Swain, 2000). In spite of its shortcomings, the POSQ remains a widely accepted measure of task and ego goal orientations.

Perceived motivational climate. Athletes' perceptions of the motivational climate of their team were assessed using the Perceived Motivational Climate in Sport Questionnaire-2 (PMCSQ-2; Newton, Duda, & Yin, 2000). The PMCSQ-2 consists of 33 sport-specific items that are preceded by the stem ''On this team...''. The measure includes task- and ego-involving subscales each of which consists of three sub-dimensions. The dimensions found to underlie task-involving climates are effort/improvement (e.g. ''the focus is to improve each game/practice''; ''trying hard is rewarded''), important role (e.g. ''players at all skill levels have an important role on the team''), and cooperative learning (e.g. ''the players help each other to get

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Table I. Descriptive statistics, alpha coefficients, and zero-order correlations among the study variables ($N = 180$).

Variable	mean ± *s*	Zero-order correlations											
		1	2	3	4	5	6	7	8	9	10	11	12
1. Prosocial behaviour T1	3.46 ± 0.64	(0.74)											
2. Antisocial behaviour T1	2.30 ± 0.68	−0.23**	(0.86)										
3. Task orientation T1	4.23 ± 0.56	0.24**	0.02	(0.80)									
4. Ego orientation T1	3.65 ± 0.72	0.01	0.21**	0.46**	(0.83)								
5. Task-involving climate T1	4.02 ± 0.49	0.36**	−0.13	0.35**	0.12	(0.89)							
6. Ego-involving climate T1	2.64 ± 0.59	−0.21**	0.35**	−0.03	0.21**	−0.26**	(0.86)						
7. Prosocial behaviour T2	3.50 ± 0.59	0.52**	−0.11	0.01	−0.03	0.22**	0.01	(0.72)					
8. Antisocial behaviour T2	2.25 ± 0.75	−0.15*	0.58**	−0.08	0.16*	−0.14	0.37**	0.02	(0.91)				
9. Task orientation T2	4.22 ± 0.58	0.18*	−0.03	0.34**	0.21**	0.22**	−0.05	0.27**	−0.01	(0.84)			
10. Ego orientation T2	3.55 ± 0.80	−0.05	0.23**	0.17*	0.49**	0.03	0.15	0.05	0.25**	0.44**	(0.85)		
11. Task-involving climate T2	3.90 ± 0.58	0.34**	−0.13	0.21**	0.06	0.48**	−0.27**	0.28**	−0.17*	0.53**	0.14	(0.92)	
12. Ego-involving climate T2	2.63 ± 0.62	−0.11	0.32**	−0.17*	0.06	−0.12	0.48**	0.06	0.43**	0.08	0.21**	−0.16*	(0.88)

Note: Ranges of scores were 1–5 for all the variables. T1 = Time 1 (beginning of the season), T2 = Time 2 (end of the season). Alpha coefficients are in parentheses across the diagonal. $^{*}P < 0.05$, $^{**}P < 0.01$.

better and excel''). The ego-involving motivational climate includes the sub-dimensions of intra-team member rivalry (e.g. ''the players are encouraged to outplay the other players''), unequal recognition (e.g. ''the coach gives most of his or her attention to the stars''), and punishment for mistakes (e.g. ''the coach gets mad when a player makes a mistake''). Participants respond on a Likert scale, with the choices being 1 (*strongly disagree*), 2 (*disagree*), 3 (*neutral*), 4 (*agree*), and 5 (*strongly agree*). In this study, mean scores for the task- and ego-involving subscales were calculated separately by adding scores from each of the dimensions and dividing by the respective number of items. The PMCSQ-2 has demonstrated adequate internal consistency with satisfactory alpha coefficients for both the task-involving ($\alpha = 0.88$) and ego-involving ($\alpha = 0.87$) subscales. Furthermore, confirmatory factor analysis of the PMCSQ-2 has indicated an adequate fit of the model to the data (see Newton *et al.*, 2000). Acceptable alpha coefficients were also recorded in the present study (see Table I).

Prosocial and antisocial behaviours. Prosocial and antisocial behaviours were assessed with a measure adapted from a previous study (Sage & Kavussanu, in press). Items were added (e.g. help out an injured opponent, signal to players to stop play for an injured opponent), removed (returning ball to opposition for a throw in, free kick), and adapted from a previous version to form a total of 21 behaviours. The final list comprised 8 prosocial behaviours (e.g. ''helping an opponent off the floor'', ''congratulating the opposition on good play'') and 13 antisocial behaviours (e.g. ''elbowing an opposition player'', ''trying to injure an opponent'', and ''diving to fool the referee''). The footballers were asked to think about the matches they play in and indicate how often they engage in each of the 21 listed behaviours. As behaviour was measured subjectively, the term in this study refers to reported rather than actual behaviour. Subjective measures are the practical option when a large sample is used in a study. Participants responded on a 5-point Likert scale with the choice of responses being 1 (*never*), 2 (*rarely*), 3 (*sometimes*), 4 (*often*), and 5 (*very often*). Prosocial and antisocial scales were scored separately by adding responses for each item and dividing by the number of items on the respective subscale. In past research, internal reliability has been reported at 0.91 and 0.65 for antisocial and prosocial behaviour, respectively, and confirmatory factor analysis of the prosocial and antisocial items has indicated a satisfactory model fit [comparative fit index (CFI) = 0.90, root mean square error of approximation (RMSEA) = 0.05, 90% RMSEA confidence interval = 0.04 – 0.06, standardized root mean square residual (SRMR) = 0.07

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(Sage & Kavussanu, 2007)]. Alpha coefficients for the prosocial and antisocial behaviour scales used in the present study exceeded suitable levels and are presented in Table I.

Results

Preliminary analysis

Before running the main analyses, the data were checked for missing values and outliers; none were identified. Furthermore, the assumptions of normality, linearity, and homoscedasticity (see Tabachnick & Fidell, 2001) were all met. Although in previous work females have been shown to be higher on moral functioning (e.g. Kavussanu & Roberts, 2001) and lower on ego orientation (e.g. Duda *et al.*, 1991) than males, comparisons between the sexes were not conducted in this study because of the imbalance in the numbers of female and male participants. Instead, separate *Z*-scores were calculated for males and females and then merged to control for any potential differences in these subgroups.

Descriptive statistics, correlations, and reliabilities

Descriptive statistics of all variables are presented in Table I. Mean values for behaviours across the season show that, in general, players ''sometimes'' to ''often'' engaged in prosocial behaviour and ''rarely'' to ''sometimes'' engaged in antisocial behaviour. Levels of task orientation were higher than ego orientation at both the beginning (Time 1) and end (Time 2) of the season, and perceptions of task-involving climate were higher than perceptions of ego-involving climate at both time points.

Pearson's zero-order correlations among all variables are also presented in Table I. At the beginning of the season, prosocial behaviour was positively related to task orientation and task-involving climate and negatively related to antisocial behaviour and ego-involving climate. Antisocial behaviour was positively linked to both ego orientation and ego-involving climate. Task orientation was positively associated with ego orientation and task-involving climate. Finally, ego-involving climate was positively related to ego orientation and negatively related to task orientation. The magnitude of most of these relationships was ''medium'' (see Cohen, 1992). With the exception of the relationship between prosocial and antisocial behaviour, similar correlations among variables were revealed at the end of the season (see Table I).

Alpha coefficients are presented across the diagonal of Table I. These values show that the measures attained satisfactory internal consistency, with all values above the recommend level of 0.70 (Tabachnick & Fidell, 2001).

Main analyses

We used path analysis to examine temporal stability of prosocial and antisocial behaviour, goal orientations, and perceived motivational climate (Bentler, 1995; Mullaik & Millsap, 2000) and cross-lagged panel analysis to explore bi-directional relationships between these variables. First, a less restricted base model was specified (Model 1) in which covariance stabilities of task orientation, ego orientation, task-involving climate, ego-involving climate, prosocial behaviour, and antisocial behaviour were estimated. The first regression model was an isolated stability model, meaning that only autoregressions were included in the model. The outcome variables at Time 2 were regressed on their matching predictor variables at Time 1. For example, prosocial behaviour at Time 2 was regressed on prosocial behaviour at Time 1 and this was repeated for each pair of variables. As stated earlier, Model 1 pertained to the first purpose of this study – investigation of the covariance stability of variables across the season. Purpose two, examining mean changes in the variables over the season was analysed using repeated-measures analysis of variance. The third purpose, investigating the interrelationships between the variables, was examined by a cross-lag model (Model 2). Models 2a and 2b had the same path structure as Model 1 but also explored cross-lagged relationships between variables at Time 1 and at Time 2. Retaining the paths of Model 1 isolates the unique effects of the cross-lagged paths, which would otherwise be affected by any covariance instability of the variables.

Parameters of the models were assessed using AMOS (version 6) statistical software and the maximum likelihood method (Bentler, 1995). The adequacy of Models 1, 2a, and 2b was determined by fit indices. The adequacy of a model is commonly determined using the chi-square goodness-of-fit test (χ^2), which estimates discrepancies between the model-implied and observed covariance matrices. The lower the value of the χ^2 statistic, the better the adequacy of the model. Accompanying significance testing deems non-significant *P*-values as an acceptable fit of the model. However, as the χ^2 statistic has been criticized because of its sensitivity to sample size (Cohen, 1988; Marsh, Balla, & McDonald, 1988) and the relatively small sample in this study ($N \leq 200$), additional indices of fit were considered. The comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR) were used to evaluate model fit. Research has shown that these fit

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indices display restricted random variation under various conditions of model misspecification, sample size, and estimation methods (Fan, Thompson, & Wang, 1999). Comparative fit indices over 0.90 indicate an adequate fit, while a value of 0.95 represents a very good fit of the model to the data (Hu & Bentler, 1999). Values below 0.06 for RMSEA and 0.08 for SRMR signify an adequate model (Hu & Bentler, 1999). Finally, modification indices were used to indicate improvements in the fit of the model by freeing specified parameters. For reasons of parsimony and clarity, parameters with estimates above the 0.05 level of significance were removed from the test hypothesized model.

Results of the main analyses are presented in Table II and Figures 2 and 3. Path analysis showed that Model 1 approached constancy (CFI = 0.90; constancy is reached when CFI = 1) in the isolated autoregression of goal orientations, perceived motivational climates, and prosocial and antisocial behaviours at Time 2 with their respective variables at Time 1. The CFI, RMSEA, and SRMR approached the criteria for good fit (see Table II). Antisocial behaviour showed the highest covariance stability, which was moderate in value. This was followed by moderate covariance stability for prosocial behaviour, ego orientation, perceived ego-involving climate, and perceived task-involving climate. Finally, the

Table II. Fit indices of models tested.

	χ^2 (d.f.)	CFI	RMSEA (90% CI)	SRMR
Model 1: Isolated stability model	105.44 (47)***	0.90	0.08 (0.06–0.10)	0.04
Model 2a: Hypothesized cross-lagged model	177.00 (39)***	0.77	0.14 (0.12–0.16)	0.10
Model 2b: Final cross-lagged model	75.26 (42)***	0.94	0.07 (0.04–0.09)	0.03

Note: CFI = comparative fit index; RMSEA = root mean squared error of approximation; 90% CI = 90% confidence interval of RMSEA; SRMR = standardized root mean square residual. ***$P < 0.001$.

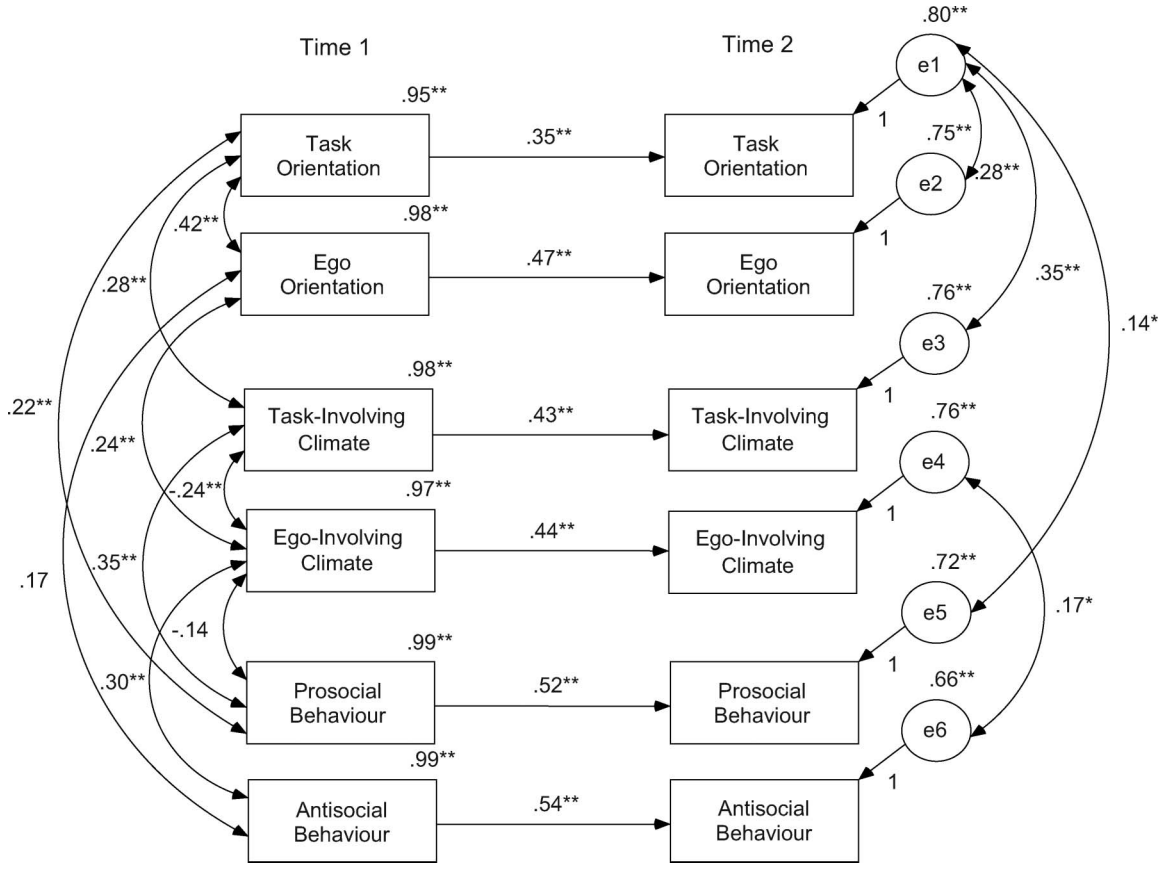

Figure 2. Isolated stability model of goal orientations, motivational climates, and prosocial and antisocial behaviours at Time 2 (end of the season) autoregressed onto variables at Time 1 (beginning of the season). *Note*: All parameter values are significant at $P < 0.05$. *$P < 0.01$, **$P < 0.001$.

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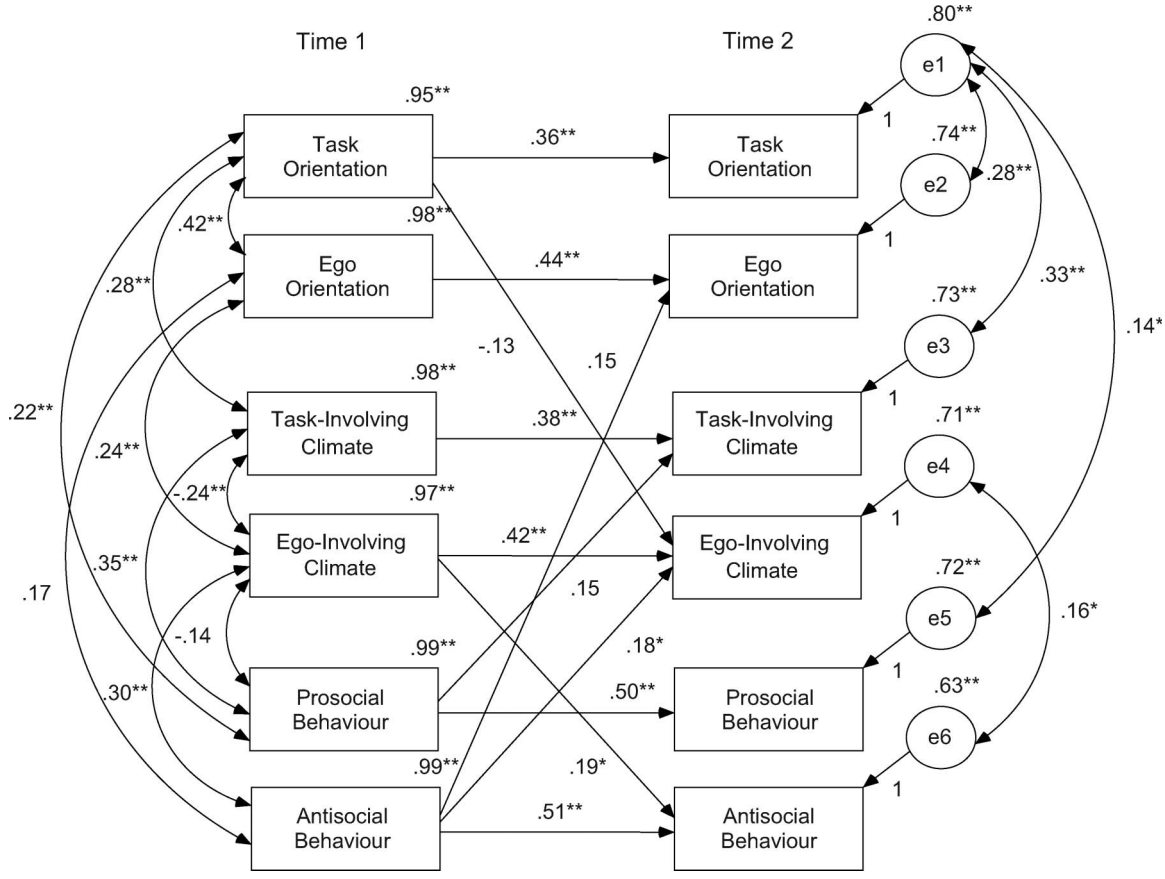

Figure 3. Final cross-lagged model of the relationships between goal orientation, motivational climate, and moral behaviour at Time 1 (beginning of the season) with repeated measures of the variables at Time 2 (end of the season). *Note*: All parameter values are significant at $P < 0.05$. *$P < 0.01$, **$P < 0.001$.

covariance stability for task orientation was low to moderate (see Figure 2). Further analyses of each of the variables indicated that only the perceived task-involving climate declined significantly over time ($F_{1,179} = 9.0$, $P = 0.003$, partial $\eta^2 = 0.05$).

Model 1 included covariances between the variables at Time 1. All covariances were small in magnitude. At Time 1, significant covariances were evident between task orientation and ego orientation, task-involving climate, and prosocial behaviour. Ego orientation covaried positively with ego-involving climate and antisocial behaviour. Task-involving climate covaried positively with prosocial behaviour and negatively with ego-involving climate. Ego-involving climate covaried negatively with prosocial behaviour but positively with antisocial behaviour.

The fit indices presented in Table II for Model 1 were achieved after adding error covariances at Time 2. Supplementary paths included positive error covariances between task orientation and ego orientation, task-involving climate, and prosocial behaviour. A fourth path existed between ego-involving climate and antisocial behaviour. It is important to note, however, that error covariances must be viewed with scepticism because data-driven model modifications can undermine the generalizability of the findings (MacCallum, Roznowski, & Necowitz, 1992).

Cross-lagged relationships were examined by Models 2a and 2b. In Model 2a, all cross-lagged possibilities specified in Figure 1 were tested. However, non-significant parameters between the variables at Time 1 and Time 2 were dropped. Paths were removed from task orientation at Time 1 to task-involving climate and prosocial behaviour at Time 2; from ego orientation at Time 1 to ego-involving climate and antisocial behaviour at Time 2; from task-involving climate at Time 1 to task orientation and prosocial behaviour at Time 2; from ego-involving climate at Time 1 to ego orientation at Time 2; and from prosocial behaviour at Time 1 to task orientation at Time 2. Models 2a and 2b included the same covariances between Time 1 variables described earlier for Model 1. In addition, Model 2b included the same error covariances described earlier for Model 1. The addition of these covariances resulted in a very good fit of the model to the data (see Table II).

The final cross-lagged model is presented in Figure 3. As can be seen in this figure, prosocial

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behaviour at Time 1 positively predicted perceived task-involving climate at Time 2. Antisocial behaviour at Time 1 predicted both ego orientation and perceived ego-involving climate at Time 2. In addition, perceived ego-involving climate at Time 1 positively predicted antisocial behaviour at Time 2. Thus, a bi-directional relationship was found between perceived ego-involving climate and antisocial behaviour. Finally, in the only addition to the hypothesized parameters, task orientation at Time 1 negatively predicted perceived ego-involving climate at Time 2. All path coefficients were weak in magnitude.

Discussion

Sports motivational moral research has focused on the relationship between the constructs of achievement goal theory and moral variables. Cross-sectional studies have identified links among goal orientations and perceptions of the motivational climate with prosocial and antisocial aspects of morality as well as the construct of sportspersonship. In spite of the evidence that supports these links, the direction of the relationship between motivational and moral variables, their covariance stability, and change over time have yet to be fully investigated. In a first step towards addressing these limitations, the present study used a longitudinal design. Path analysis was employed to assess isolated and cross-lagged models between personal, environmental, and behavioural variables measured at the beginning and end of a competitive football season.

Covariance stability of motivational and moral variables

The first purpose was to explore the stability in motivational (task orientation, ego orientation, perceived task-involving and ego-involving climates) and moral variables (prosocial and antisocial behaviour) across a youth football season. Findings revealed moderate covariance stability for goal orientations, perceived motivational climates, and moral behaviours (Figure 2). The inclusion of all the predictor variables in the model may have suppressed the magnitude of the individual covariance values. Stability in the goal orientations concurs with theory that task and ego goals are dispositional in nature (Nicholls, 1989) and supports previous longitudinal research (Gano-Overway & Ewing, 2004; Williams, 1998) that found moderate stability in goal orientations over time. In the absence of empirical or theoretical support, no predictions were made on the stability of motivational climate or prosocial and antisocial behaviour.

An explanation of the moderate stability of the variables may be the consistency in social-environmental variables, especially significant others. For example, personnel, such as the coach and team-mates, tend to remain constant over the season and their collective influence on the expression of goal orientations, perceptions of the motivational climate, and moral behaviour is also expected to be constant. From a developmental perspective, any instability in moral behaviour or motivation of youth footballers may occur from one season to the next, rather than during the season itself. At youth levels, and particularly school teams, coaches tend to stay with the same age groups and players can experience a different coach each season or year. Furthermore, player transfers often take place between seasons. Thus, moderate covariance stability of motivation and behaviour within the season may be attributed to consistency in personnel, compared with the changes in players, coaches, and so on from one season to the next.

Changes in variables

The second purpose was to identify any changes in the variables from the beginning (Time 1) to the end (Time 2) of the season. Analyses revealed that only the perceived task-involving climate declined across the season. The decrease in perceived task-involving climate may be attributed to an increase in importance placed on outcomes towards the end of the season when the cost of winning and losing increases; it is in the latter stages of the season that promotion, relegation, and championship places are decided. A further possibility is a decrease in the amount of task-involving information expressed by the coach or a reduction in the players' attention to their coaches' communication of cooperative learning, effort, improvement, and role importance.

A decrease in perceived task-involving climate may result in less adaptive patterns of behaviour (Ames, 1992), if this trend is indeed symptomatic of youth football. A declining emphasis on learning and skill mastery may cause some players to gradually lose interest over the season and may even lead to decisions to withdraw from the sport (e.g. Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2002). It is important to identify and explain such trends to practitioners of sport. Strategies can then be implemented that maintain an emphasis on self-referenced learning and skill mastery to prevent any maladaptive consequences that may prevail when the emphasis on task-involving climate is low.

Contrary to our hypotheses, a decrease in prosocial behaviour and an increase in antisocial behaviour over the course of the season did not occur. These expectations were largely based on the findings of Vallerand and Losier (1994). Despite similarities in the samples (i.e. age), the present study included

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more than twice as many participants, incorporated female participants, and used football rather than ice-hockey players. The number of participants increased the power of the statistics. Females have been shown to manifest greater morality than males: They report higher moral reasoning, moral functioning, and sportspersonship (e.g. Bredemeier, 1994; Duda *et al.*, 1991; Kavussanu & Roberts, 2001; Lemyre *et al.*, 2002). Moreover, sports have also been shown to differ in various aspects of morality (e.g. Bredemeier, Weiss, Shields, & Cooper, 1986; Conroy, Silva, Newcomer, Walker, & Johnson, 2001; Kavussanu & Ntoumanis, 2003), which may extend to fluctuations in moral behaviour across the season. For example, aggression is an inherent part of ice hockey and may become more prevalent as the cost of winning and losing increases at the end of the season (Vallerand & Losier, 1994). In semi-contact sports such as football, the early penalization of aggression may stabilize these behaviours over the season. Any of these differences in the samples may have influenced the diversity of findings between the two studies.

Other discrepancies between the studies lie in the measures. First, while Vallerand and Losier (1994) considered intrinsic and extrinsic motivation from the perspective of self-determination theory (Deci & Ryan, 1985), the present study employed Nicholls' (1989) achievement goal theory to examine motivational orientation. Changes in intrinsic and extrinsic motivation are not necessarily correspondent with variations in task and ego orientation. Second, although sportspersonship orientations have similarities with aspects of morality, they also differ from prosocial and antisocial behaviour. Despite including some prosocial and antisocial items, sportspersonship focuses on respect for conventions, opponents, commitment, and rules and officials, rather than exclusively tapping behaviours that are of benefit to or a hindrance to others. A final difference is that the sportspersonship scale measures orientations towards behaviours, whereas the prosocial and antisocial instruments assess frequencies in behaviour. Thus, sampling and measurement issues may have led to contrasting findings between the present study and previous work.

Interrelationships of variables

The third purpose was to investigate the reciprocal effects between the variables over the course of a season. Model 2b identified five cross-lagged parameters that improved the fit indices from the hypothesized Model 2a. In spite of the differences with the hypothesized model, the identified parameters were suitably supported by theory and research. The first of the identified free parameters was the positive prediction of perceived task-involving climate at Time 2 from prosocial behaviour at Time 1. The association between task-involving climate and positive aspects of morality is supported by past research on sportspersonship (Gano-Overway *et al.*, 2005; Miller *et al.*, 2004); longitudinal links with prosocial behaviour expand on this work. In addition, rather than the motivational climate predicting morality, the reverse was identified in this study.

The link between behaviour and social-environmental variables was theoretically proposed by Bandura (1999) as reciprocal in nature. In this sample, early-season prosocial behaviours weakly predicted late-season perceptions of a climate that emphasized cooperative learning, effort, improvement, and the importance of individual role. In light of the decrease in overall task-involving climate from the beginning to the end of the season, this result is difficult to interpret. One explanation may be the reciprocity in prosocial behaviours within the team. Specifically, prosocial behaviours directed towards team-mates and coaches that were not reciprocated may have detracted from perceptions of task-involving climate. Future studies should probe further the link from prosocial behaviour to motivational climate, including potential moderating variables such as reciprocated behaviour from team-mates and coaches.

The second significant cross-lagged parameter represents early-season antisocial behaviour positively and weakly predicting late-season ego orientation. Several studies have predicted antisocial behaviour from ego orientation (Kavussanu, 2006; Kavussanu & Roberts, 2001; Sage & Kavussanu, in press; Sage *et al.*, 2006), but the current finding is the first exploration of a reverse effect. Antisocial behaviour may initiate some degree of rivalry that could eventually influence the orientation to gain superiority over opponents. Disadvantaging rivals could result in the instigators of antisocial behaviours outperforming other competitors. Experiencing victory may then motivate the athlete to continue to focus on an ego orientation.

The next two parameters correspond to the only finding of a reciprocal relationship. Early-season perceived ego-involving climate positively and weakly predicted late-season antisocial behaviour, and early-season antisocial behaviour positively and weakly predicted late-season perceived ego-involving climate. In spite of the magnitude of the association, the existence of a bi-directional relationship is an important finding that supports the link between behavioural and environmental variables in Bandura's social cognitive theory (Bandura, 1986, 1999). Relationships between ego-involving climate and antisocial aspects of morality are supported by past research (e.g. Kavussanu, 2006; Kavussanu &

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Spray, 2006; Ommundsen *et al.*, 2003). Previous cross-sectional studies have investigated the relationship from the perspective of perceptions of the environment predicting behaviour. The present findings extend the relationship from motivational climate to moral behaviour by identifying the association between ego-involving climate and antisocial behaviour over the course of a season. Furthermore, this study indicates that a two-way process may exist whereby acts of aggression or cheating at the start of a season predict perceptions of intra-team rivalry, unequal recognition, and mistake-contingent punishment. Thus, as well as a perceived emphasis on rivalry and superiority over opponents and team-mates predicting behaviours that disadvantage others, the reverse may also be true over time. Antisocial behaviour could prompt athletes to attend to the rivalry that exists in the sport and this focus may subsequently lead to further antisocial acts.

The last parameter that was included in the final model was task orientation at the start of a season negatively and weakly predicting perceived ego-involving climate at the end of a season. Although not included in the hypothesized model, the modification indices indicated that freeing this parameter would significantly improve the fit indices and this finding is not entirely unexpected. It is suggested that a focus on learning and improvement from a self-referenced perspective could divert a player's perception away from any emphasis on rivalry and superiority. Over time, task-orientated individuals could undermine any focus on outperforming others by disregarding some of the communications of ego-involving climate. The indifference of task-orientated players to ego-involving climate may even shape the coach so that any emphasis on superiority and rivalry may decrease slightly over the season. As no empirical evidence exists to support the above assertions, they are considered speculations that should be verified by future research.

Despite similarities between the findings from the cross-lagged model and past research, not all hypothesized relationships were identified. The only link between the goal orientations and motivational climate was a negative path from task orientation to ego-involving climate. None of the variables predicted prosocial behaviour and despite expectations of reciprocal relationships between goal orientations, motivational climate, and moral behaviour, only one emerged between antisocial behaviour and ego-involving climate. All the identified relationships were weak in magnitude.

The reasons for a lack of findings and weak relationships could be several. First, the predictions made in the hypothesized model (Figure 1) were based on all the possible relationships between the variables found in various cross-sectional studies. It was unlikely that all these findings would be replicated exactly in the limited sample of the present longitudinal study. Second, variables included in previous research differed from the ones used in the present study. Prosocial and antisocial behaviour have been examined rather than sportspersonship and other moral variables (e.g. legitimacy of or intentions towards unsportsmanlike play), while the constructs of achievement goal theory have been used instead of intrinsic and extrinsic motivation (c.f. Vallerand & Losier, 1994). Third, the rigorous statistical procedures, which controlled for covariances between all the variables, may have suppressed relationships that have emerged from restricted hierarchical regression analyses. For example, some studies offering strong support for a link between ego orientation and antisocial variables (e.g. Duda *et al.*, 1991; Kavussanu & Roberts, 2001; Sage *et al.*, 2006) have not considered motivational climate in their analyses. Furthermore, those studies that have considered both goal orientations and motivational climate (e.g. Kavussanu, 2006) have not modelled their relationship with moral variables over time. Goal orientations or motivational climate may predict moral behaviour measured at the same time point but not 6 months later.

Additional methodological limitations may have reduced the strength of the relationships that emerged or failed to emerge. For example, error-laden composite variables were used, and autoregression values were included in Model 2; thus, it was not surprising that there were so few cross-lagged paths and all had low coefficients (see Hertzog & Nesselroade, 1987; MacCallum & Browne, 1993). Finally, the participant to parameter ratio was low (4.2 to 1). An increase in the number of participants or a reduction in the number of model parameters may have enhanced the strength of the relationships that emerged.

Although our results only partially support our hypotheses, the study is an important preliminary longitudinal exploration of the relationships between the variables of interest. As hypothesized, antisocial behaviour predicted ego orientation and perceived ego-involving climate; prosocial behaviour predicted task-involving climate; and perceived ego-involving climate predicted antisocial behaviour. Coupled with past research, these findings indicate the possibility of bi-directional relationships in a holistic model of motivation and morality. The present study extends previous work by including constructs of achievement goal theory, prosocial and antisocial behaviour in an exploration of their interrelationships over a youth football season. In addition to the possibilities that this study offers for future research, practical implications can be drawn from the links from

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behaviour to motivational variables. Interventions should be aimed directly at moral behaviours. Targeting reductions in antisocial behaviours could suppress ego-involving climates and ego orientations, whereas promoting prosocial behaviour may increase the likelihood of task-involving climate. Supported hypotheses also suggest that significant others should continue to avoid ego-involving climates that emphasize rivalry and superiority over others.

Limitations of the study and directions for future research

This study has some limitations that need to be addressed in future work. First, although common in the literature, respecification of the parameters in a model sacrifices control over Type I error and can lead to situations where idiosyncrasies of the data should not be interpreted as reliable (MacCallum *et al.*, 1992). Also, including error covariances and additional parameters further increases the likelihood of capitalization on chance. To substantiate the findings of this study, the model requires cross-validation with other samples of young footballers. Second, because of the small sample size, we used composite rather than latent variables in the model. This may have reduced the size of the paths. Future research should attempt to replicate the present findings with a larger sample to allow for the use of latent variables. Although the sample size was good at the beginning of the season, high attrition by the end of the season is a major limitation of the study. In addition to reducing statistical power, missing cases cannot be assumed to be random and may be indicative of a pattern that could influence the results. Third, our findings can be generalized only to adolescent footballers and research needs to replicate the present findings using a wider range of age groups and sports.

The moderate correlations between task and ego orientations may have reduced our ability to find main effects for these variables in the cross-lagged model. Although correlations of this size are not common in the literature, similar correlations have been reported in two other studies that have also used British youth footballers (Kavussanu, 2006; Sage & Kavussanu, in press). It is possible that this population is unique in its patterns of goal orientation. Further studies should determine whether this is the case.

Another ideal direction for future research would be to increase the number of sampling time points. Repeating measurements three or four times, across two or three seasons, would represent a more reliable means of assessment that should reveal the true nature of the interrelationships between the variables. Finally, future research that incorporates approach and avoidance sub-dimensions of ego orientation (Elliot & Church, 1997) may expose added complexity in the relationship between goal orientations and moral behaviours.

Conclusion

The present study revealed moderate covariance stability of goal orientations, motivational climate, and moral behaviour over a regular youth football season. In a second cross-lagged model, there was only one significant path from early-season motivational variables to moral behaviour at the end of the season. However, three paths were revealed from early-season moral behaviour to late-season motivational variables. Overall, more paths emerged between moral behaviour and motivational climate than between moral behaviour and goal orientations. The exploratory nature of this study means our findings should be interpreted with caution and further research is encouraged that challenges the present models. Future work can help establish the validity of social cognitive theory and provide useful direction for sport practitioners.

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