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# Redefining Sportspersonship: A Compliant and Principled Model

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by

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# ABSTRACT

Despite the accepted importance of sportspersonship, behaviour contrary to good sportspersonship is regularly observed in sport (Shields, Bredemeier, LaVoi, and Power, 2005). It is surprising therefore, that since the development of a multidimensional definition of sportspersonship in in mid-1990s (Vallerand, Deshaies, Cuerrier, Briere, and Pelletier, 1996; Vallerand, Briere, Blanchard, & Provencher, 1997), research into the subject has stalled somewhat. The purpose of this thesis was to reignite this avenue of research by exploring an existing model, and developing and presenting a superseding model. After a critical analysis of the existing measures of sportspersonship, the compliant and principled sportspersonship scale was developed and validated in a host of studies. Exploratory factor analysis presented an initial model of sportspersonship. This was examined using confirmatory factor analysis and exploratory structural equation modelling. A five-factor, 24-item measure of sportspersonship was presented consisting of (a) compliance towards rules, (b) compliance towards officials, (c) legitimacy of injurious acts, (d) approach towards opponent, and (e) principled game perspective.

Studies in the thesis positively relate sportspersonship with moral behaviour, task goal orientation, empathy, agreeableness, and conscientiousness. It is negatively associated with antisocial behaviour and Machiavellianism. These studies support the construct validity of the scale and provide greater theoretical understanding of sportspersonship. Criterion validity is supported through two experimental studies that found that sportspersonship positively predicted prosocial and negatively predicted cheating. Finally, recommendations for enhancing sportspersonship are offered. Overall, the thesis redefines sportspersonship, presents a new multidimensional measure of sportspersonship and evidence of its validity, explores the relationship of sportspersonship to other psychological concepts, and provides a template for assessing and developing measurement scales.

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# Chapter 1: Introduction

## 1.1. Summary

This chapter aims to introduce and review existing approaches to the understanding of morality and sportspersonship. The range of approaches to studying morality is broad. Cognitive-developmental and social-psychological approaches present different constructs that have yet to inform a holistic view of sportspersonship. As such, sportspersonship as a construct is somewhat convoluted. Morality in the broader psychological context is considered first, before its application to sport and sportspersonship. Finally, a plan for the thesis is provided at the end of the chapter.

## 1.2. Introduction

Sport is often a stage for public demonstration of values and behaviours. Moreover, the inclusion of rules and conventions to intentionally make it harder for performers to succeed by increasing the challenge intensifies the potential for cheating or gaining advantages perceived as unfair by some. While testing for its participants, sport therefore provides an excellent stage for psychologists wishing to further investigate morality. Morality is a complex psychological and philosophical topic. Psychologists have adopted a variety of approaches to its understanding, from cognition to behaviour and investigating social context. Despite the increasing size of public and media response to, and interest in incidents of good and bad sporting behaviour, there are regular examples of transgressive behaviours reported. While studying the frequency of good and poor sport behaviours, Shields, Bredemeier, LaVoi and Power (2005) found 27% of youth sports performers reported acting like bad sports and 31% indicated that they had argued with an official.

In the sport domain, research on morality or sportspersonship often focuses on one aspect, such as reasoning or behaviour. It normally remains exclusive to that area. There exists interesting research on moral development (Shields & Bredemeier, 2007), sportspersonship (e.g., Vallerand, Deshaies, Cuerrier, Briere, & Pelletier, 1996; Vallerand,

Briere, Blanchard, & Provencher, 1997), moral disengagement (Boardley & Kavussanu, 2007, 2008) and moral behaviour (see Kavussanu, 2008). Within these areas there is a variety of approaches, terminology and recommendations, which make it difficult to gain a clear picture of morality in sport. The purpose of this chapter, as well as introducing the thesis, is to critically evaluate approaches to morality research and place this in the context of sport. The chapter presents general themes within research examining a model of moral decisions and behaviour (Rest, 1984), moral reasoning, sportspersonship, moral functioning, disengagement, climate and behaviour. Finally, there is an attempt to summarise this extremely broad area and offer directions for future research.

## 1.3. Moral reason and moral action

Rest (1984) developed a model of moral reason and moral action identifying four components in moral decisions and behaviour. Specifically, these components are: (a) interpreting the situation and identifying a moral problem; (b) figuring out what one ought to do, formulating a plan of action that applies the relevant moral standard or ideal; (c) evaluating the various courses of action for how they would serve moral or nonmoral values and deciding what one will actually try to do and (d) executing and implementing the moral course of action. These components (or processes, Rest used these terms interchangeably), describe in turn the important contents of moral reason and action (Narvaez & Rest, 1995). The first component acknowledges the situation in terms of society, perhaps a sporting context, or a competitive scenario. The second component of the model has near exclusive focus on the cognitive aspect of morality (Bergman, 2002). Moral values are required in the third component, which Rest (1986, p.13) points out “are not the only values we have”. Here, Rest (1986) suggests that the important moral issue is identifying what motivates people to select other values above moral ones. While it is not in the scope of this thesis to discuss all of the potential motivating factors, it seems logical that these are influenced by social norms.

Clearly, the final component is the most observable in the model, leading Blasi (1980, p.1) to state that "morality ultimately lies in action", and this is perhaps the primary reason that it has been studied at length. The notion of sportspersonship is not restricted to just one component of morality, such as behaviour, but encompasses reason and action. One could argue that a fifth component could be added to this model; (c) reflection. This would make the model recursive, as experience would then inform future moral judgments.

Although it seems logical for a review of literature to consider the components of Rest's model in order, the varying approaches used by researchers means that it is not possible to do so. However, this review will begin with a discussion of sportspersonship, followed by moral reasoning and end with a discussion of moral action.

## 1.4. Sport Psychology

Sport psychology developed gradually over the early part of the 20th century after Triplett's (1898) study on the enhanced performance of cyclists when part of a group. Much of the proceeding development can be attributed to Coleman Griffith (e.g., 1926, 1928) who was interested in the role of psychology in developing sports coaching. In its early stages, sport psychology was purely about performance. The goal of the subject was to enhance the sporting performance of individuals and teams by employing psychological strategies. To a large extent, this has remained core to the topic. However, its use became wider spread in the 1960's with publications such as Cratty's "Psychology and Physical Activity" (1968). This was a move to include a participation level of sport, not merely performance-focused. At this point, reciprocal behaviours were acknowledged as enhancing enjoyment and participation. The first assessment of sportspersonship followed soon after when Webb (1969) published the orientation toward play scale, which distinguished between a play or performance orientation.

While the main focus of sport psychology now is still undoubtedly on performance, topics such as morality and sportspersonship are significant and are frequently discussed. This is highlighted by a search on the SPORTDiscus database for "moral*" and "sport", which yields 140 peer-reviewed journal articles from 1963 to 1990. Between 1990 and 2000, there were a further 135 articles published. However, between 2001 and 2014, there have been a further 898 publications, demonstrating a rapid recent growth. Indeed, 112 of these articles were published in 2013 alone. Despite the recent research interest however, attempts to conceptualise sportspersonship have stagnated since in mid-1990s.

## 1.5. Sportspersonship

Sportspersonship, though a little clumsy as a term, is preferred to the gender-specific, better-known colloquial phrase of "sportsmanship" and is used throughout this thesis. Indeed, this is typical in the sport psychology literature. Though the phrase (or a similar colloquial version) is frequently used, it is little understood from a conceptual viewpoint. Researchers initially approached sportspersonship as a set of behaviours or attitudes, while newer theories consider it as an orientation or an individual difference. These approaches are critically discussed here.

The first noteworthy conceptualisation of sportspersonship was presented by Crawford (1957) who classified 1,115 unethical incidents into nine categories, specifying the frequency of which they were reported. The nine categories were; officiating (463), opponent relationships (156), rules of the game (152), player relationships (121), professional relationships (69), recruiting (66), public relations (47), eligibility rules (31), and scouting (10). Crawford's incidents were obtained from surveying 300 colleges and universities. This included a range of athletic directors, officials, coaches, and trainers. The makeup of this group explains the inclusion of some more organisational issues such as recruiting and public relations. Though Crawford's sample did not include athletes themselves and contains some

categories that would be of little relevance to moral reasoning and behaviour during performance, it does provide an initial potential structure of sportspersonship. It is somewhat surprising then, that few attempts to genuinely operationalise the concept of sportspersonship were made from this point. Instead, Crawford's research led to a host of atheoretical assessments of sportspersonship, which are reviewed in the next chapter.

By far the most significant development in our understanding of sportspersonship to date is the work of Vallerand et al. (1996, 1997), who presented firstly, a multidimensional definition (1996) and secondly, a measurement of sportspersonship (1997). Informed by researchers such as Backman (1985) and Damon (1988), Vallerand and colleagues posited that morality is learned through interpersonal interactions, rejecting the structural-developmental approach popularised by notable morality theorists such as Kohlberg (1969, 1976, 1981, 1984, 1986). Vallerand et al. proposed a five-dimension model identifying (a) one's full commitment towards participation, (b) respect for social conventions, (c) respect for rules and officials, (d) respect for the opponent and (e) the lack of a negative approach. The authors identified that merely justice and adhering to the rules were not sufficient to display a positive sporting orientation and encouraged a wider appreciation of social factors. The social-psychological approach favoured in the development of this definition clearly embraces behavioural factors, such as shaking hands after a game or helping an opponent off the floor. This approach to sportspersonship is intended to include knowledge of behaviour and sportspersonship orientations, which Vallerand et al. (1996, p. 90) describe as "individual differences in the propensity to act in a sportsmanlike fashion". Such a definition suggests that this learned orientation through interpersonal interactions is ingrained. It is surprising therefore, that Vallerand et al. chose to use adolescents to form and test their conceptualisation of sportspersonship. In Vallerand et al.'s (1996) study, the participants were aged 10-18. If an individual propensity to act in a certain way is obtained through a

series of interpersonal interactions, it would be sensible to use participants who have had many interpersonal interactions when developing a definition. The use of adolescents is likely to place more of an emphasis on social norms, which may explain why Stornes' (2001) qualitative study using Vallerand et al.'s definition of sportspersonship indicated that the social context was of great important when sportspersonship orientations are manifested in behaviour.

The concept of a sportspersonship orientation appears to have relatively strong links to component three in Rest's (1984) model, evaluating various courses of action and deciding what to do. In this process, motivation clearly has a significant impact on whether to select a moral value, and therefore display the consequent behaviour or another value. Vallerand et al. however, are keen to stress that their social-psychological approach goes beyond what they refer to as the "justice dimension" (Vallerand et al., 1996, p.96) that they claim the structural- or cognitive-developmental approach primarily adopts. The motivational aspect of sportspersonship has been supported with studies identifying positive associations between sportspersonship and task orientation, where a performer judges success based on self-improvement (e.g., Dunn & Causgrove-Dunn, 1999; Gano-Overway, Guivernau, Magyar, Waldron & Ewing, 2005) and negatively associated task orientation with intention to use unfair play (Corrion, d'Arripe-Longueville, Chalabaev, Shiano-Lomoriello and Cury, 2010; Stuntz & Weiss, 2003). Task orientation has also been demonstrated to predict prosocial behaviour (Sage & Kavussanu, 2007a, 2007b). Dunn and Causgrove-Dunn (1999) also negatively associated ego orientation, where a performer judges success based on social comparison (Duda & Nicholls, 1992), to sportspersonship. However, Dunn and Causgrove-Dunn (1999) commented that, irrespective of ego orientation, task orientation has a significant effect on sportspersonship. Sage and Kavussanu (2007a) assessed goal orientation and moral behaviour in adolescent soccer players. They found that prosocial behaviour was

positively predicted by task orientation and antisocial behaviour was positively predicted by ego orientation. It also appears that the climate significantly predicts moral behaviour. In another study, Sage and Kavussanu (2007b) recruited 96 college students to participate in 10-minute games of table soccer under task-involved, ego-involved, and control conditions. Identifying incidents of prosocial and antisocial behaviour, the authors found that those in the task-involved condition demonstrated more acts of prosocial behaviour than those in the ego-involved and control conditions. Conversely, those in the ego-involved condition demonstrated more acts of antisocial behaviour than those in the task-involved or control conditions. Previously, Gano-Overway et al. (2005) examined goal orientation and sportspersonship in female volleyball players and suggested that task orientation positively predicted respect for opponents, while being immersed in a task-involving climate positively predicted respect for the sport. More recently, Corrion et al. (2010) found achievement goals had a mediating effect on the judgment of cheating acceptability. Specifically, the authors identify that mastery-based goals (self-referenced) had a negative relationship with cheating acceptability, while performance-based goals (norm-referenced) had a positive relationship. In a study by Stuntz and Weiss (2003), adolescents were presented with scenarios of unsporting actions. The authors reported that the role of social goal orientations (i.e., peer influence) was greater than individual orientations. While goal orientations are considered dispositional (Nicholls, 1984, 1989), it appears that their interaction with the climate influences moral behaviour.

Further motivational-based studies of sportspersonship used self-determination theory (Deci & Ryan, 1985, 1991), which posits that individuals strive to satisfy three basic needs; competence, autonomy and relatedness (i.e., engaging socially). Deci and Ryan (1985, 1991) distinguish between intrinsic (participation is an end in itself e.g., enjoyment) and extrinsic motivation (participation is a means to an end e.g., reward) and describe those with high

intrinsic motivation as self-determined. Vallerand and Losier (1994) found that greater self-determination had a significant positive effect on sportspersonship orientations, as both self-determination and sportspersonship reduced comparatively over a five-month period in ice-hockey players. It was also suggested that the relationship between self-determination and sportspersonship is bi-directional, in that both sportspersonship and self-determination predicted each other, though self-determined motivation has greater influence (Vallerand & Losier, 1994, 1999). A thorough investigation of the relationship between self-determination and sportspersonship was presented by Ntoumanis and Standage (2009), who tested a structural equation model and found that perceptions of competence, autonomy and relatedness predicted autonomous or controlled motivation. The authors explain that motivation is considered to be autonomous when needs are satisfied but controlled when these needs are thwarted. As hypothesised, sportspersonship was positively predicted by autonomous motivation and negatively predicted by controlled motivation. Additionally, antisocial attitudes were positively predicted by controlled motivation and negatively predicted by autonomous motivation. This study further strengthened the link between self-determination and sportspersonship. While Vallerand and colleagues (1997) accept that further development of their model would be helpful, the social-psychological approach used and the relationship with motivation do provide an interesting context for the study of morality in sport. However, the plethora of research from the structural- and cognitive-developmental domains of psychology have been largely ignored.

## 1.6. Moral Reasoning

Much of Rest's work built on the work of Kohlberg (1969, 1976, 1981, 1984, 1986) who used a cognitive-developmental approach combining previous approaches of Piaget (e.g., 1932, 1954) and Rawls (1971). Indeed, Rest, Narvaez, Thoma and Bebeau (2000) described their perspectives as a Neo-Kohlbergian approach to morality. Though similar,

Rest placed more emphasis on motivational factors than Kohlberg did. At the core of Kohlberg's work is the importance of reasoning. Kohlberg (1976) developed a six-stage model of moralisation (Table 1.1), in which stages are distinctly split into three levels; pre-conventional, conventional and post-conventional (Puka, 1991). Pre-conventional morality refers to heteronomous morality and individualism, typically evident in young children when moral reasoning is based on an exchange relationship. For example, a child may act in a seemingly moral way to avoid getting into trouble. Conventional morality includes a notion of relationships, interpersonal conformity and an awareness of social systems. This level requires one to acknowledge that their actions have consequences for others with regard to a society. Post-conventional morality includes more individual rights and universal ethical principles. This infers a more principled approach rather than adherence to expectation, which is more compliant-based. Interestingly, Kohlberg's (1976) model acknowledges a social perspective, which could be aligned with a sporting context. It appears sensible then to acknowledge that the level of moral reasoning should be differentiated, as the post-conventional level, whereby an individual follows self-chosen ethical principles, is clearly a more credible form of moral decisiveness than mere compliance. This distinction between levels of morality is something that social-psychological models in a sport context (e.g. Vallerand et al., 1996, 1997) have not acknowledged.

Haan (1977, 1978, 1983) and Haan, Aerts and Cooper (1985) proposed an alternative interactional model to Kohlberg's cognitive-based approach. This model added greater significance to the role of society and an individual's interactions with others, referring to the moral balance between assimilation (integrating new information into already existing constructs) and accommodation (creating new constructs to integrate new experiences). The most effective use of moral reasoning in a sporting context can be attributed to Bredemeier and Shields, who have presented several moral development programmes. Bredemeier (1985)

provided support for a structural-developmental approach identifying an inverse relationship between moral reasoning and the perceived legitimacy of injurious sport acts based on interviewing high school and college basketball players.

**Table 1.1.**
**Kohlberg's model of moralisation.**

| Level and Stage | What is Right | Reasons for Doing Right | Social Perspective of Stage |
|---|---|---|---|
| LEVEL I – PRECONVENTIONAL | | | |
| Stage 1 – Heteronomous Morality | Avoid breaking rules backed by punishment | Avoidance of punishment | *Egocentric.* Doesn't consider the interests of others |
| Stage 2 – Individualism, Instrumental Purpose and Exchange | Following rules only when it is someone's immediate interest to do so | To serve one's own needs or interests | *Concrete individualistic.* Aware that everybody has their own interest to pursue and these conflict |
| LEVEL II – CONVENTIONAL | | | |
| Stage 3 – Mutual Interpersonal Expectations, Relationships and Interpersonal Conformity | Living up to what is expected by people close to you | The need to be a good person in your own eyes and those of others | *Individual in relationships.* Aware of shared feelings, agreements and expectations |
| Stage 4 - Social System and Conscience | Fulfilling the actual duties to which you have agreed | To keep the institution going as a whole | *Differentiates societal point of view.* System defines roles and rules |
| LEVEL III – POST-CONVENTIONAL or PRINCIPLED | | | |
| Stage 5 – Social Contract or Utility and Individual Rights | Being aware that people hold a variety of opinions, that most values and rules are relative to your group | A sense of obligation to law because of one's social contract | *Prior-to-society.* Aware of values and rights prior to social attachments and contracts |
| Stage 6 – Universal Ethical Principles | Following self-chosen ethical principles | The belief as a rational person in the validity of universal moral principles | *Moral point of view.* Recognize the nature of morality or the fact that persons are ends in themselves |

Source: Adapted from Kohlberg, 1976

Bredemeier, Weiss, Shields, and Shewchuk (1986) examined the effects of a moral growth education intervention with children following a six-week summer camp. They presented significant moral growth and advocated the structural-developmental approach above a social learning approach. Interestingly, Rainey, Santilli and Fallon (1992) reported that more cognitively developed (i.e., morally mature) baseball players were more likely to argue with officials. This supports the inclusion of principled morality, as arguing and other negative sporting behaviours may be routinely assumed to be associated with lower levels of moral maturity. However, it is only when one has formed a greater moral perspective on the roles of others that they can argue effectively. In short, some examples of bad sportspersonship, such as arguing with officials, actually demonstrate a more informed position and the existence of a principled point, which may be a sign of higher moral maturity. For example, a performer knowledgeable about the rules may be better placed to identify an official's error and therefore be more vociferous in their complaint. A societal example could be a performer spitting at an opponent, which is not in any way physically painful. Therefore, without an understanding of the social context that, in many cultures, considers spitting to be entirely disrespectful, one would complain less vociferously. To add further complexity, consider those who are reasoning at a lower level (e.g., pre-conventional); they may still adopt good sporting behaviour but for different reasons than those operating at a higher level of moral reasoning (e.g., post-conventional). Therefore, it is important to acknowledge that Kohlberg's approach considers reasoning only, which may not necessarily align to specific behavioural outcomes. Equally, the observation of a behaviour cannot be assumed to have a simple cause, which is why reasoning is important. To understand and change behaviour, it is of the upmost importance that the reasons behind it are established. In a sporting context, Rest's model has received some attention by referring to moral functioning.

### 1.6.1. Moral Functioning

Moral functioning considers the decision-making processes that are required to determine an action and examines the intentions of the individual, rather than merely the behaviours, reflecting on how an individual responds to a sense of obligation. This obligation is a response to a perceived ideal (Blasi, 1988). Intentions are clearly an important factor in the discussion of moral functioning. Logically then, an individual's internal cognitive component (Kutnick, 1986) and motives must be a key determinant of moral or immoral behaviour (Kohlberg & Candee, 1984). In the development of moral functioning in recent sport psychology literature, Kavussanu and colleagues (e.g., Kavussanu & Ntoumanis, 2003; Kavussanu, Roberts & Ntoumanis, 2002; Kavussanu & Spray, 2006) have advocated the use of Rest's (1979), Rest, Narvaez, Thoma, and Bebeau (1999a) and Rest et al.'s (2000) work on morality. This approach focused more on what Rest et al. (1999a) define as "micromorality" after it had been suggested by Killen and Hart (1995) that Kohlberg's approach failed to distinguish between formal structures of society (macromorality) and everyday life. Micromorality therefore considers situation-specific individual reasoning.

While examining moral functioning, Kavussanu and Roberts (2001) challenged the assumption that sport is good for building ones character, citing Orlick (1978) who found an overemphasis on winning creates moral problems, Kleiber and Roberts (1981) found that competition may reduce prosocial behaviour and Kohn (1986), suggested competition increases antisocial behaviour. Kavussanu and Roberts concluded that, due to the generally accepted higher levels of ego orientation in a sporting climate, moral behaviour is lower in frequent sport participants than in less frequent sport participants. This research supported earlier studies into moral functioning comparing athletes to non-athletes (Bredemeier & Shields, 2001a), contact to non-contact sports (Bredemeier & Shields, 1986), frequent participants to non-frequent participants (Blair, 1985) and high versus low ego orientation

(Chaumeton & Duda, 1988; White & Duda, 1994). Given the clear link between goal orientation and moral functioning, it seems that perspectives of success should form some part of sportspersonship. The conceptual link between moral functioning and moral behaviour can be a difficult one. One form of functioning that may provide greater insight to this link is moral disengagement.

### 1.6.2. Moral Disengagement

Bandura (1991, 1999) presented the Social Cognitive Theory of Moral Thought and Action to bridge the gap between moral cognition and behaviour. He suggested that undesirable social behaviours are committed due to an individual's disengagement with their own morals, through a series of eight psychological manoeuvres. Moral justification (cognitively restructuring harmful behaviours into honourable ones), euphemistic labelling (labelling culpable activities as less harmful) and advantageous comparison (comparing transgressive behaviours to more reprehensible ones) refer to harmful acts. Displacement of responsibility (viewing personal actions as a directive of others) and diffusion of responsibility (dividing responsibility for decisions among a group) refer to responsibility and accountability. Distortion of consequences minimizes harmful consequences of detrimental actions and dehumanization (cognitively depriving the victim of human qualities) and attribution of blame (viewing oneself as the victim) moves the victim role to the perpetrator (Bandura, Barbaranelli, Caprara & Patorelli, 1996).

Recent literature in the sport domain has provided reasonable support for the use of a slightly adapted understanding of moral disengagement. In particular, the work of Boardley and Kavussanu (2007, 2008, 2009, 2010, 2011) has effectively applied moral disengagement to sport. In doing so, Boardley and Kavussanu (2007) developed a multidimensional measure (Moral Disengagement in Sport Scale) and a general-factor, short version (2008). Boardley and Kavussanu (2011) explain that most research on the topic in sport has either related to

moral disengagement and behaviours that occur in sport participation or doping in sport. Hodge and Lonsdale (2011) assessed moral disengagement with motivation and prosocial and antisocial behaviour. Findings supported the role of moral disengagement as a mediating factor between motivation and behaviour. Boardley and Kavussanu (2009) examined the athlete's perceptions of their coach's character building competency. Boardley and Kavussanu (2010) also found some evidence associating moral disengagement with the effects of ego orientation on antisocial behaviour. Generally, this supports the notion of moral disengagement as a mediating variable between motivation and moral behaviour. Long, Pantaléon, Bruant and d'Arripe-Longueville (2006) undertook a qualitative study to explain the moral reasoning of young (aged 15-18) male athletes when transgressing rules. Their results demonstrated frequent use of displacing responsibility, moral justification and diffusion of responsibility. Corrion, Long, Smith and d'Arripe-Longueville (2009) supported this when they found that sports performers often use displacement and diffusion of responsibility and minimization of transgressions and their consequences. Said differently, sports performers use reasoning pertaining to "It's not my fault" and "It's not serious". Further support for the use of moral disengagement in sport came from Šukys and Jansonienė (2012), who identified a significant relationship between increased moral values and decreased moral disengagement. Boardley and Kavussanu examined the mediating effects of moral disengagement on prosocial and antisocial behaviour with character building (2009) and perceived value of toughness (2010). The use of moral disengagement as a mediating variable was also assessed by d'Arripe-Longueville, Corrion, Scoffier, Roussel and Chalabaev (2010) when they suggested that it mediated the relationship of negative affective self-regulatory efficacy and social efficacy with prosocial behaviour, cheating acceptability and likelihood of cheating.

Conceptually, moral disengagement is in need of further clarification. The strength of the relationship between several of the eight mechanisms of moral disengagement is equivocal across studies. The correlations among the moral disengagement mechanisms are very high in some studies. The extent to which these factors are related was demonstrated by Bandura et al. (1996), who failed to identify subfactors of moral disengagement. In effect, the postulated mechanisms all referred to the same unidimensional concept. Although Boardley and Kavussanu (2009) did identify subfactors, the extent to which they appeared to measure the same thing was substantial. While moral disengagement appears to be a useful function for understanding some moral choices, it appears that the psychological manoeuvres described by Bandura (1991, 1999) are more individualised, though very similar, cognitive displacement strategies rather than dimensions of the overall concept.

Further caution is urged when unilaterally applying moral disengagement to sport. This concept was originally developed to establish causality of grossly inhumane behaviours (Bandura, 1991, 1999, 2002), such as how a normally morally-competent individual can be the perpetrator of an inherently immoral act. Indeed, Bandura's 1999 paper was entitled "Moral disengagement in the perpetration of inhumanities". A clear example of this would be Nazi soldiers in concentration camps, as used by Milgram (1963, p.1), citing C. P. Snow who wrote "when you think of the long and gloomy history of man, you will find more hideous crimes have been committed in the name of obedience than have ever been committed in the name of rebellion." The leap from such levels of moral behaviour to behaviour observed in a sporting context is not one that should be made lightly. It is not clear whether such individual moral frameworks transcend sport or are changeable depending on circumstance.

### 1.6.3. Legitimisation of Injurious Acts

Traditionally, aggressive acts in sport had been viewed from a social learning approach, largely based on examining observed behaviours. To complement this approach,

Bredemeier (1983) examined aggressive acts from a structural-developmental perspective. Specifically, Bredemeier examined the extent to which children legitimised potentially injurious acts in sport. At the same time, Silva (1983) posited that the socialisation process of sport in young people encourages such legitimisation. In 1985, Bredemeier developed the continuum of injurious acts to examine this and was able to distinguish between those who legitimised more aggressive acts than others.

A consistent finding in research examining the legitimisation of injurious acts is the link to trait-based aggression tendencies. This was underlined by Bredemeier, Weiss, Shields, and Cooper (1987), who also found that children believed it to be more legitimate for adults to perform injurious acts than children. The relationship between aggression tendencies and moral reasoning resulting in the legitimisation of potentially injurious acts was again supported by Bredemeier (1994). Miller, Roberts and Ommundsen (2005) examined whether this was a result of motivational climate and found that a more task-involved, mastery climate was related to lower levels of legitimising injurious acts.

The raft of research on this topic has presented fairly unequivocal results but it should be noted that it has almost exclusively used children and young people as participants. There is no theoretical or logical reason why this should not be evident in adults, but it remains, as yet, unexamined. Notwithstanding this, it appears sensible that the legitimisation of injurious acts is pertinent to sportspersonship and supplements the more social learning approaches.

## 1.7. Bracketed Sport Morality

Bredemeier (1994, 1997) suggests that games and sport are conceptually and emotionally distinct from everyday life. This requires consideration when applying concepts such as moral disengagement to sport. Further, Bredemeier and Shields (1984, 1985, 2001a, p. 348) support the divergence between a sporting context and everyday life, referring to Huizinga's (1955) quote that "sport is a world within a world in which the normal restraints

of everyday life are temporarily set aside in favour of a conventionalized structure which allows typical moral norms to be transgressed." Bredemeier and Shields (2001b, p. 7) also claim that "sport is a unique context" and emphasise that sport morality differs from morality in everyday life. This is very different to negative, antisocial or poor sporting behaviour. In reality, many of the sporting transgressions are relatively non-consequential when compared to the actions discussed by Bandura (1991, 1999, 2002). This forms what Bredemeier and Shields (2001a) describe as "game reasoning" and "bracketed morality". As sport may be seen as spatially and temporally separate from everyday life, this desire to win is also a more temporary state than one's drive to be successful in life. Bredemeier and Shields (1984) presented moral dilemmas to high school and college basketball players, swimmers, and non-athletes. Some of the dilemmas were related to sport while others were not. The results suggested that the moral reasoning used in sport was significantly less morally developed (mature) than outside of sport. Following equivocal findings, Bredemeier and Shields (2001b, p. 14) suggested caution "in making generalizations regarding the relationship between sport participation and moral reasoning" and questioned whether the divergence between sport and moral reasoning may be specifically related to interactive contact sports. This has not been thoroughly investigated.

The notion of bracketed morality has recently been revisited by Kavussanu, Boardley, Sagar, and Ring (2013) but from a moral behaviour perspective. In two studies, Kavussanu et al. examined reported moral behaviour in sport and while studying in university. In contrast to Bredemeier and Shields' contention, there were significant relationships evident, in that those who reported more (or less) prosocial behaviour in sport also reported more (or less) prosocial behaviour in university. However, there were significant differences between the sport and university contexts in both studies. Primarily, prosocial behaviour was lower in sport than in university, while antisocial behaviour was higher. In the second study, the

authors performed a mediation analysis, which suggested this was partially explained by ego orientation. In short, the difference in behaviour between the two contexts was partially a function of ego. Overall, there appears to be significant support for bracketed morality, from a reasoning and behaviour perspective. This is an interesting point, given that sport is so commonly referred to as being good for character development.

## 1.8. Moral Climate

Sport is not engaged in alone. Even individual sports require the performer to engage in a vast social environment of coaches, competitors, officials, and spectators. Before progressing onto a discussion of moral action, it would therefore be remiss to not include discussion pertaining to the atmosphere or climate that may affect an individual's moral decision making. Data presented by Shields, LaVoi, Bredemeier, and Power (2007) highlights the importance of coach, teammate and parent behaviour, but also noted the surprising influence of spectators. Cumulatively, these provide a climate or atmosphere that can influence moral decisions and actions.

Shields et al. (2007) adopted a moral culture approach to their study, initially proposed by structural-developmentalists (e.g., Power, Higgins & Kohlberg, 1989). In sport, there is once again a combination of this and a more social-psychological approach. Sport psychology literature has devoted much attention to motivational climate, which is often created by coaches and teammates. Considering the earlier links between motivation and sportspersonship, it seems appropriate to therefore include a review of moral climate. Ames and Archer (1988) and Ames (1992) originally made a distinction between two forms of motivational climate while studying student behaviour in classrooms before Seifriz, Duda and Chi (1992) related this to a sport setting. This distinction was between mastery and performance climates. Later, Newton, Duda and Yin (2000) elaborated on the original model, including two higher-level dimensions of task-involving mastery and ego-involving

performance climates, which each contain three sub-dimensions. The task-involved dimensions are cooperative learning, effort/improvement and importance role, while the ego-involved dimensions are intra-team member rivalry, unequal recognition and punishment for mistakes. Typically, a task-involved climate will encourage performers to identify success by self-improvement. In contrast, an ego-involved climate uses social comparison as a measure of success. A task-involved mastery climate has been positively associated with sportspersonship (Papaioannou, 1997; Miller, Roberts & Ommundsen, 2004), prosocial behaviour (Kavussanu, 2006; Kavussanu & Spray, 2006; Kavussanu, Seal & Phillips, 2006; Boardley & Kavussanu, 2009) and negatively associated with antisocial behaviour (Kavussanu, 2006; Kavussanu et al., 2006; Boardley & Kavussanu, 2010).

The coach clearly has an important role in developing a motivational and a moral climate. With this in mind, Priest, Krause and Beach (1999) identified an issue in that athletes estimated lower ethical values for the coach than themselves. Examining ethical behaviour over four years, the authors then noted a gradual decline in that behaviour. Hodge and Lonsdale (2011) investigated the relationship between athlete's perceived coaching styles (autonomous-supportive vs. controlling) and moral behaviour. Further, they examined if this relationship was mediated by moral disengagement. Results indicated a positive association between controlling coaching styles, which discourage self-determination and moral behaviour. This relationship was mediated by moral disengagement, providing a clear conceptual pathway from coaching style to self-reported antisocial behaviour to both teammates and opponents. Such a climate may influence how participants view success or ability. Corrion et al. (2010) found that adolescents who had fixed notions of ability (entity theory) were more likely to judge cheating as acceptable. Conversely, those who perceive ability as malleable (incremental theory) were less likely to judge cheating as acceptable when they use mastery goals.

The perception of leadership can be an important predictor of sportspersonship. To investigate this, Stornes and Bru (2002) assessed sportspersonship orientations and perceptions of leadership style among handball players. Interestingly, they found that the overall effect on team sportspersonship was negligible, but there was a significant effect on individual sportspersonship, in that more positive and supportive leadership styles encouraged greater sportspersonship. Chow, Murray and Feltz (2009) claim that team norms are consistently found to have the greatest influence on a performer's likelihood to cheat, in that the group dynamic exerts a strong influence on moral decision making. However, they also report that this is closely followed by coaches' game strategy, whereby coaches indicate their belief in their capabilities to coach during competition. In effect, this demonstrates increased team aggression under more competitive coaches, though Chow et al. (2009) are keen to stress that this has equivocal findings in general. This growing body of research has important applied implications, as further support for coaches wishing to promote positive moral behaviour through fostering an appropriate atmosphere can be offered. The recent developments regarding sportspersonship in coaching by Bolter and Weiss (2012, 2013) (discussed later) can help to achieve this.

As indicated earlier, the climate created by spectators appears to have a significant effect on morality in sport (Shields et al., 2007). Disturbingly, Shields et al. (2005) found that 17% of youth sport performers reported having been scared by the behaviour of a spectator and five percent reported having been physically attacked by a spectator. The authors also remark that one should remember that in youth sport, many of the spectators are parents, so it is difficult to separate spectators and parents at times. In turn, such spectator behaviour may influence performer behaviour. Indeed, Arthur-Banning, Paisley and Wells (2007) suggested that positive or negative player behaviours are significantly predicted by spectator and coach behaviour. Wann, Carlson and Schrader (1999) and Wann, Schrader and Carlson (2000)

reported that highly identified spectator aggression towards officials and opposition may condone such behaviour from performers in a basketball match. Taken together, research reporting influential findings from coaches, teammates and spectators offers strong support for the impact of moral climate on sportspersonship, moral reasoning and moral behaviour.

In line with Rest's (1984) model of moral reason and moral action, there appears to be significant personal, motivational, and situation factors that lead to moral action. Sportspersonship is effectively a mixture of these components, demonstrated in action. For that reason, it is appropriate to next discuss moral behaviour.

## 1.9. Moral Behaviour

As stated earlier, Blasi, (1980) believed that action is ultimately the home of morality. Bandura (1999) highlighted proactive (the power to behave humanely) and inhibitive (the power to refrain from behaving inhumanely) behaviours, suggesting that moral disengagement occurs when one is unable to inhibit behaviour relative to society's expectations. For example, one's normal moral standard can be displaced through euphemistic labelling to perceive the behaviour and it's consequence as relatively innocuous, and therefore there is no need to inhibit behaviour. Hence, to proactively engage in behaviour congruent with a society's ethos is a greater level of moral behaviour than inhibitive behaviours. For example, a football player refraining from diving to win an undeserved penalty is an example of inhibitive sports behaviour and is widely expected. However, informing the official that a penalty should not be awarded for one's team is a form of proactive sports behaviour and is widely congratulated. Higher-level sportspersonship should not be defined by what one does not do (i.e., inhibitive behaviours) but by what one does do (proactive behaviours). This is an important and useful distinction between types of moral behaviour that has previously not been accounted for in models of sportspersonship (e.g., Vallerand et al., 1996, 1997).

The use of proactive and inhibitive factors in assessing moral behaviour has received reasonable support (e.g., Tisak, Tisak & Goldstein, 2006). Bandura's (1999) paper on moral disengagement and later (2002) paper on selective moral disengagement identify proactive moral behaviour as humanisation. In doing so, Bandura (1999, p.203) explains that:

> In the exercise of proactive morality, people act in the name of humane principles when social circumstances dictate expedient, transgressive and detrimental conduct. They disavow use of valued social ends to justify destructive means. They sacrifice their well-being for their convictions. They take personal responsibility for the consequences of their actions. They remain sensitive to the suffering of others. Finally, they see human commonalities rather than distance themselves from others or divest them of human qualities.

There are clear links between this generic description of moral behaviour and a sporting context. The challenge however, is to effectively operationalise this understanding into a workable and testable model. Of particular difficulty is defining the proactive elements of moral behaviour. In developing the prosocial and antisocial behaviour in sport scale, Kavussanu and Boardley (2009) pointed to the lack of consistency in previously often used hypothetical scenarios (e.g., Kavussanu et al., 2002; Kavussanu & Roberts, 2001; Kavussanu & Spray, 2006; Miller et al., 2004, 2005; Ommundsen, Roberts, Lemyre & Treasure, 2003). Kavussanu and Boardley (2009) used Bandura's approach to moral behaviour to clearly define moral behaviour in sport. Rather than focusing entirely on proactive and inhibitive behaviour however, they considered prosocial and antisocial behaviour. Kavussanu and Boardley (2009) further split such behaviours towards teammates and opponents. With this came a real challenge in defining prosocial behaviours, as they are typically less commonly observed. While observing soccer players, Kavussanu, Stamp, Slade and Ring (2006) noted

that there was no sex difference for prosocial behaviours but males engaged in significantly more antisocial behaviours.

Moral behaviour in sport then concludes the processes identified in Rest's (1984) model. It is interesting to note the rate at which research in this area has progressed since Kavussanu's (2008) very thorough review has been rapid. While this offers some interesting findings and methods of identifying and classifying behaviours, ultimately it is only an outcome. If researchers and practitioners wish to develop moral behaviour, it is necessary to consider the antecedents to behaviour.

## 1.10. Gender differences in sportspersonship

Gender differences have repeatedly and consistently been reported in sportspersonship studies. Bredemeier (1985, 1994) and Bredemeier et al. (1987) found that males were more likely to endorse potentially injurious acts than females. This finding has been found consistently since (Duda, Olsen, & Templin 1991; Kavussanu & Roberts, 2001; Miller et al., 2005). Females have also scored higher than males on assessments of moral functioning (Kavussanu & Roberts, 2001), maturity of moral reasoning (Bredemeier & Shields, 1986), and prosocial behaviour (Kleiber & Roberts, 1981), whiles males have demonstrated a higher level of antisocial behaviour (Kavussanu et al., 2013). Further, Tsai and Fung (2005) found that males demonstrate significantly lower regard for sportspersonship than females and Meyer, Jorn, and Mayhew (2007) found that males were generally less sporting than females, though this was based on an assumption that high competitiveness implies low sportspersonship. Consequently, it is useful to examine this in future assessments of sportspersonship.

## 1.11. Directions for future research

Morality in sport is a complex area and one with a rich variety of terminology and approaches. There is a plethora of interesting research but perhaps a lack of coherence. The

regularity of developments lately also supports the interest and importance of this area. To progress, researchers should consider the benefits of the various approaches. As such, proposed here are six directions for future research.

Firstly, any link between moral reason and moral action is still unclear and yet to be contained within a single model. A holistic model could combine reason and action or the relationship between existing models. At present, the only multidimensional definition of sportspersonship (Vallerand et al., 1996, 1997) does not consider the legitimisation of injurious acts, values all aspects of sportspersonship equally, and neglects any kind of principled domain. Secondly, researchers should make a greater distinction between levels of moral reasoning and behaviour in sport. Kohlberg (1976) identified three levels using a stage-based approach. Pre-conventional and conventional morality largely requires compliance to an expected norm, be it a law or societal expectation. However, post-conventional morality requires one to follow self-chosen principles. A distinction between compliance and principled morality in sport, which also considers Bandura's approach to distinguishing between inhibitive and proactive behaviours, would further existing approaches to studying reason and action.

Thirdly, principled morality should be contained in a measure. This is a difficult task, as examples are fewer but researchers should explore quantitative and qualitative solutions for this. A possible approach would be to examine perspectives of individuals, in terms of how much they recognise that their game is temporarily distinct from everyday life. This would discourage a win at all costs mentality, as ultimately, there are more important things. A fourth recommendation is to explore cultural differences in sport morality in both a geographical and sport sense. From a geographical perspective, existing approaches have largely been developed and studied in a similar area (e.g., sportspersonship using French-Canadian adolescents and prosocial and antisocial behaviour using players from team sports

in the UK). This is an important area regarding applications for sport development, as few sports are genuinely global and would need an informed view of cultural moral expectations when promoting their sport in other countries. The general bias towards studying morality in team sports is something that should be reviewed, as many individual sports, such as golf and tennis have significant etiquette requirements.

A fifth recommendation is that researchers further establish the value of increased morality. This should include the benefits to both the sport and the performer. While the benefits to the sport may be clear, there is very little research pertaining to the psychological benefits of playing in a morally virtuous manner. While there may be mental health benefits and extrinsic reward (such as popularity), it would be useful to determine if those with high moral standards perform better or worse than their morally-deficient counterparts. Of particular interest would be other traits demonstrated by an individual with high principled moral reasoning and prosocial behaviour. Finally, further research is required into moral education and the development of a positive climate. While sociomoral education programmes exist (e.g., Miller, Bredemeier & Shields, 1997), it is only of late that more applicable suggestions to enhance morality in sport have been published. Recent thought-provoking publications by Shields and Bredemeier (2009, 2011a, 2011b) introduce the notion of "decompetition", which provides a new approach to moral development in sport. There has been a recent increase specifically relating to how coaching affects moral reasoning and/or decisions (e.g., Hodge & Lonsdale, 2011; Bolter & Weiss, 2012). This should continue to develop applied practices. In summary, the most striking recommendation is the development of a new model and measure that builds on some existing dimensions of sportspersonship but adds a more principled perspective.

In summary, existing models of sportspersonship define the concept by an undertaking of expected behaviours. To develop sportspersonship theoretically and in

practice, a new model is required that redefines the concept to incorporate the principled domains of moral reasoning and proactive behaviour.

## 1.12. Thesis plan

The aim of this thesis was to redefine sportspersonship through the creation of a compliant and principled model and measure. The second half of the thesis provides significant support for the validity of the new measure. This thesis contains seven chapters:

Chapter Two presents a thorough overview of measurements of morality and sportspersonship. This is achieved in four sections. Firstly, assessments of morality outside of sport are considered. Secondly, there is a review of measures of morality within sport. Thirdly, specific sportspersonship measures are critically evaluated. Finally, a summary of all discussed assessments is presented with their relative strengths and weaknesses.

Chapter Three examines the methods used in developing new psychometric scales and assessing psychometric scales. The chapter reviews factor analytic and structural equation modelling methods before presenting an overview of typical procedures for validating a new measurement tool. This chapter critically examines the frequent use and interpretation of confirmatory factor analyses. In particular, proposed cutoff values readily cited in psychology literature are questioned.

Chapter Four has two distinct parts. The first part evaluates the validity of the most established existing measure of sportspersonship and contains Study 1 “Examining the validity of the multidimensional sportspersonship orientations scale”. This identifies which aspects of the existing model should inform a superseding model. The second part of the chapter charts the initial development of the compliant and principled sportspersonship scale in Study 2 “Initial scale development”. This explains the process of developing 71 items to represent sportspersonship, exploratory factor analysis, which finds a 33-item, 6-factor model, and subsequent reliability analysis.

Chapter Five presents two validation studies of the compliant and principled sportspersonship scale. The first, Study 3 “An examination of the factorial validity of the compliant and principled sportspersonship scale” tests the model developed in the preceding chapter on a large, independent sample employing confirmatory factor analysis and exploratory structural equation modelling. The second study in the chapter is Study 4 “Further validation of the compliant and principled sportspersonship scale”. This study again confirms the factor structure of the new model before examining the construct validity and relationship with motivation. Goal orientations and moral behaviour assessments are used to further aid the preliminary understanding of compliant and principled sportspersonship. This chapter also contains Study5 "Mental Toughness, Personality, and Sportspersonship". In this study, sportspersonship was correlated with mental toughness and aspects of personality, including aspects of the dark personality triad to identify the extent to which people high in sportspersonship display varying levels of mental toughness, conscientiousness, and Machiavellianism.

Chapter Six concerns further tests of the new model and measure in three studies. Study 6 “The test retest stability of the compliant and principled sportspersonship scale” details the stability of the measure taken twice, seven days apart by participants. This is followed by two experimental studies to test the conceptual accuracy and criterion validity of the compliant and principled sportspersonship model. Study 7 “Compliant and principled sportspersonship: A dilemma” assesses the predictive validity of the CAPSS using an experimental design based on the classic prisoner’s dilemma study. Study 8 “Compliant and principled sportspersonship: Spotting the cheats” also employs an experimental design to relate CAPSS results to cheating on an online maze game.

Chapter Seven provides an epilogue and general discussion of the findings throughout the thesis and the implications of these. There is a discussion of the potential benefits of

sportspersonship and suggestions for the development of sportspersonship are offered. Finally, limitations are discussed and recommendations for future research are presented.

In summary, this thesis aims to progress understanding of sportspersonship by reviewing existing approaches, including structural-developmental, psycho-social, and behavioural. A new model that distinguishes between compliant and principled sportspersonship is then developed and validated. The thesis then explores how this can be beneficial at an individual and social level before beginning the next discourse of how to increase sportspersonship.

## 1.13. Summary

As an area of research, sportspersonship, incorporating aspects of morality from mainstream psychology, is much convoluted. This chapter has discussed a host of approaches including structural developmental and psychosocial theorising. This has identified theories pertaining to sportspersonship, moralisation, moral behaviour, moral disengagement and bracketed sport morality. To add clarity to the existing discussion, Figure 1.1 presents a flow hierarchical depiction of how such theories have been informed. Most significantly, the only real explanation of multidimensional sportspersonship thus far is largely uninformed by many of the earlier psychological approaches to studying morality.

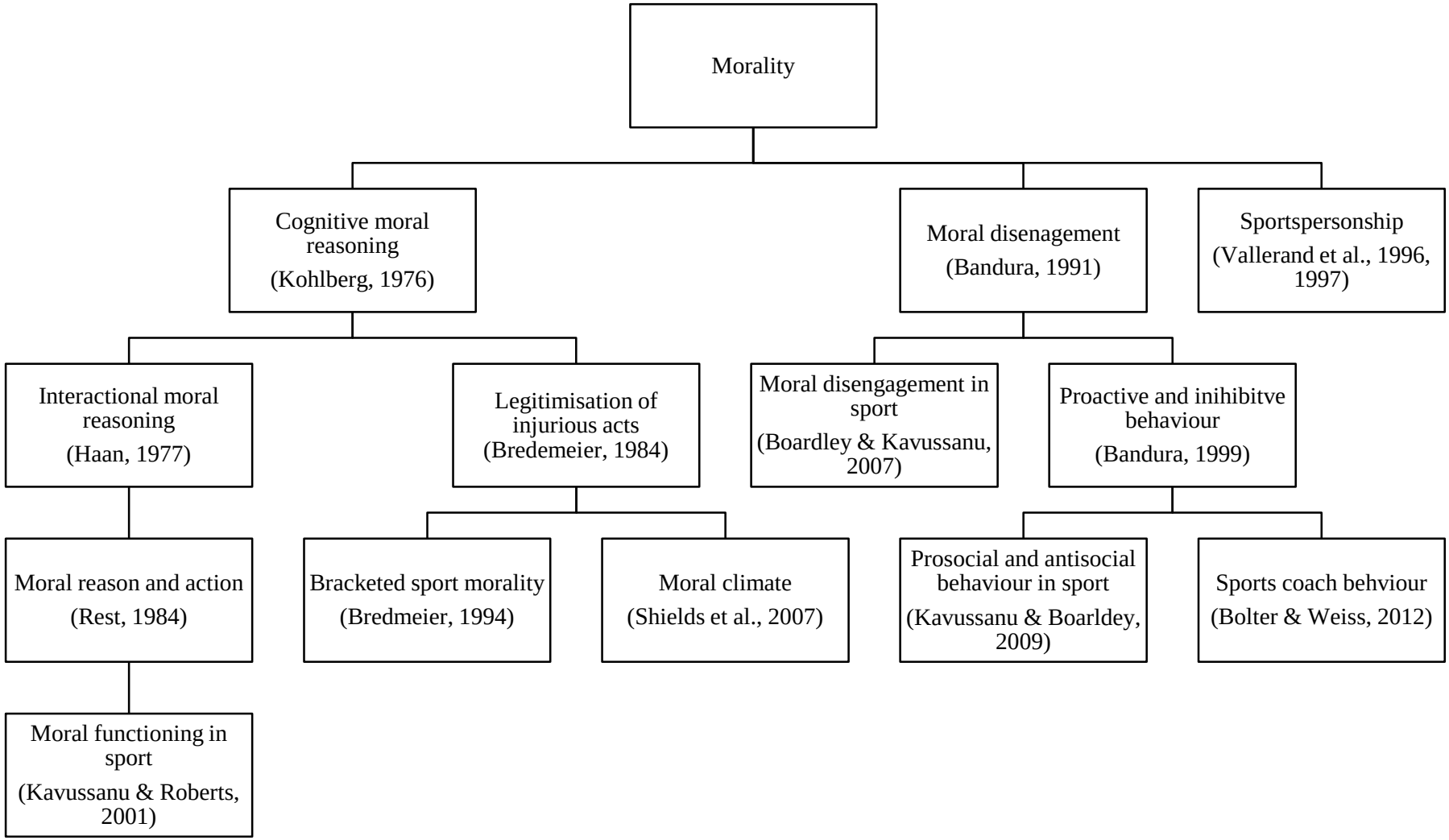



**Figure 1.1.**
**Hierarchical depiction of theories discussed throughout introduction**

# Chapter 2: Measuring Sportspersonship

## 2.1. Summary

Defining and measuring a concept often provide a great synergy. The definition of a concept is often tested by its ability to measure, and a measure often evolves the definition. Almost all of the theoretical approaches discussed in the first chapter have an associated measure, most of which are quantitative. Moreover, some measures exist almost independently of theory. The purpose of this chapter is to critically review existing measures of morality and sportspersonship. The chapter is divided into four main sections; a review of measurements of morality, a review of measures specifically from a sport context, a review of measures of sportspersonship, and a summary of the relative strengths and weaknesses of all measures discussed.

## 2.2. Introduction

The measurement of any psychological construct poses key strategic and technical challenges. In the case of morality and sportspersonship, these range from identifying whether a qualitative or quantitative approach should be adopted, whether to examine responses to dilemmas, or scenarios, or whether it is possible to develop a sufficient quantitative psychometric scale.

Morality was originally measured through interviews and moral dilemmas such as Kohlberg's moral judgement interview (1969), Rest, Cooper, Coder, Masanz and Anderson's Defining Issues Test (DIT; 1974; Rest, 1979) and its superseding DIT2 (Rest et al.,1999b), and Lind's (1978, 1985) Moral Judgement Test (MJT). The DIT, DIT2, and MJT incorporate some of Kohlberg's dilemmas, presenting participants with moral issues and seeking a response. In sport, previous studies measured behaviour using subjective coach or teacher ratings (e.g., Gibbons & Ebbeck, 1997; Gibbons, Ebbeck, &Weiss, 1995; Stuart & Ebbeck, 1995). More recently however, sport contexts have developed quantitative measures such as the Multidimensional Sportspersonship Orientations Scale (MSOS) (Vallerand et al., 1997),

the Moral Disengagement in Sport Scale (MDSS) (Boardley & Kavussanu, 2007) and the Prosocial and Antisocial Behaviour in Sport Scales (PABSS) (Kavussanu & Boardley, 2009).

## 2.3. Measuring Morality

Measurements in morality have predominantly been focused on responses to dilemmas, which are interpreted either subjectively or quantified in some way. This is particularly relevant to attempted measurement of moral reasoning, whereby it is important to understand the cognitive processes the individual experiences. This section reviews the most prominent assessments of morality from mainstream morality theorists such as Kohlberg (1969) and Rest et al. (1974).

### 2.3.1. Moral Dilemmas

Kohlberg (1958, 1969) focused largely on moral reasoning and was particularly interested in judging morality, not by the extent to which people adopted or demonstrated good or bad behaviours, but how they reasoned what they ought to do. Of Kohlberg's dilemmas, the most commonly referred to one is Heinz's dilemma from his 1981 publication:

"In Europe, a woman was near death from a special kind of cancer. There was one drug that the doctors thought might save her. It was a form of radium that a druggist in the same town had recently discovered. The drug was expensive to make, but the druggist was charging ten times what the drug cost him to make. He paid $400 for the radium and charged $4,000 for a small dose of the drug. The sick woman's husband, Heinz, went to everyone he knew to borrow the money and tried every legal means, but he could only get together about $2,000, which is half of what it cost. He told the druggist that his wife was dying, and asked him to sell it cheaper or let him pay later. But the druggist said, "No, I discovered the drug and I'm going to make money from it." So, having tried every legal means, Heinz gets desperate and considers breaking into the man's store to steal the drug for his wife."

The participant is then asked 10 questions from “Should Heinz steal the drug?” to “Suppose it's a pet animal he loves. Should Heinz steal to save the pet animal?” and “It is against the law for Heinz to steal. Does that make it morally wrong?” At each question, the participant is asked to explain their reasoning. These can then be categorised into one of Kohlberg’s (1976) six stages of moralisation. For example, “Heinz should not steal the medicine because he will consequently be put in prison which will mean he is a bad person” relates to stage one, as it demonstrates obedience as the primary method of moral reasoning. However, “Heinz should steal the medicine, because saving a human life is a more fundamental value than the property rights of another person” highlights universal ethical principles, stage six.

Kohlberg’s dilemma’s, and the scoring of them became an enormous piece of work, finally culminating in the publication of the moral judgement interview standard scoring system (Colby & Kohlberg, 1987) shortly before Kohlberg’s premature death.

#### 2.3.1.1. Moral Judgement Interview

Kohlberg’s moral judgement interview (MJI) was originally formed in 1958. Highly informed by the work of Piaget (1932), Kohlberg’s approach was phenomenological, rooted in structuralism, and constructivist. The phenomenological approach emphasised the importance of the actor’s perception and the constructivist aspect related to the extent to which people attach meanings, derived from the individual to new information. This is an approach furthered by Piaget (1965, 1971). Structuralism was an approach that Kohlberg consistently approached throughout his career, stressing that moral principles are not learnt or used independently. Rather, they are structurally bound together (Colby & Kohlberg, 1987). It was this approach to measuring morality that guided Kohlberg’s career.

The original MJI (Kohlberg, 1958) was essentially a clinically probing, semi-structured interview, coded using a set of ideal developmental types and subjected to content

analysis. Specifically, Kohlberg rated sentence scoring, identifying moral reasoning from the language used, and story rating, which adopted a more priority-based approach. These culminated in an overall score for moral reasoning, However, as understanding of morality developed, the coherence between some of the responses and independently-reviewed moral reasoning was limited (Kramer, 1968; Kohlberg & Kramer, 1969). Over his lifetime, Kohlberg regularly made tweaks to the MJI, eventually publishing the standard issue scoring (Colby & Kohlberg, 1987). This consisted of three parallel forms, each comprising three hypothetical moral dilemmas. Each dilemma was attached to 9-12 standardised probe questions to elicit greater justification from the respondent. The MJI manual details the long process of defining the intersection of each dilemma, the issues raised, norms, and the modal and value elements. The modal elements place a number from one to five as to why normative order is or is not upheld, such as obedience to having, and right to having a duty. The value elements examine the consequences of egoistic, utilitarian, ideal, and fairness outcomes.

Colby and Kohlberg (1987) presented a remarkably thorough investigation of the reliability and validity of the MJI standard issue scoring, providing evidence for the test-retest stability, interrater reliability, and internal consistency. Colby and Kohlberg's work included a host of longitudinal studies, including a 20-year study, following 58 US males from early teenage years to adulthood. The results provided robust support for Kohlberg's approach to the study of moral reasoning and support for the MJI. As noted by the authors however, it is a very lengthy time-consuming measure to conduct on large samples. Notwithstanding this however, it is somewhat surprising that Kohlberg's work has received such little attention in the sport literature.

The thoroughness of Kohlberg's work, and the detail provided by Colby and Kohlberg (1987) cannot be questioned. The moral dilemmas and the MJI though has been

subjected to criticism. Most notably, Krebs, Denton, Vermeulen, Carpendale, and Bush (1991) and Carpendale and Krebs (1992, 1995) examined the structural flexibility of the dilemmas and suggested there was some inconsistency. Specifically, Carpendale and Krebs (1995) suggested that Kohlberg's model should be more interactional, rather than the inferred systematic progress through stages. Among others, the authors were also critical of the over-emphasis on a justice dimension in Kohlberg's model. They were also critical of the plasticity of Kohlberg's model, suggesting that morality was more flexible than Kohlberg described. Finally, the authors claimed that individuals with the conviction to stick to their moral reasoning demonstrated it. Kohlberg's model does not include such conviction, and therefore it cannot be determined if the reasoning will manifest itself in behaviour.

#### 2.3.1.2. Defining Issues Test

Adopting the moral stages approach proposed by Kohlberg (1964, 1968, 1969, 1974, 1981), Rest et al. (1974) presented a quantitative measure of moral judgement. Kohlberg's (1976, 1981) dilemmas, like Heinz's were used by Rest et al., who had access to Kohlberg's work in progress and adopted it in their measure, the Defining Issues Test (DIT). Rather than simply assessing a participant's response on some kind of moral continuum, Rest et al. stressed that it is the definition of the problem and judgement of the issue that is important for identifying a level of moral development. Accordingly, the DIT contained stories/dilemmas and for each one presented participants with 12 issues to consider. The 12 issues offered for Heinz's scenario include "Whether or not a community's laws are going to be upheld", "Isn't it only natural for a loving husband to care so much for his wife that he'd steal?" and "What values are going to be the basis for governing how people act towards each other". Statements such as the third example are intended to lend themselves towards higher levels of moral development. Each issue is rated on a Likert scale of 1 = *no importance*, 2 = *little importance*, 3 = *some importance*, 4 = *much importance*, and 5 = *great importance*. The top

four most important issues are then ranked by each participant. Rankings are given weightings and for those statements that refer to stages five and six of Kohlberg's model, ratings are summed to provide a score for principled morality (P score). This is known as the P index.

The DIT and P index presented good construct validity in particular, correlating with several expected measures, though the consistent validation of the test by demonstrating higher levels of principled morality as age and education increases could be due to understanding the issue statements as much as moral reasoning. There were also two main criticisms of the P scoring index; it was forcing a quantitative judgement on a qualitative issue and it only considered principled morality, ignoring much of the data gained from the earlier stages of moral development (Davison, 1977). Several new scoring indices were produced including the D index (Davison, 1977; Davison & Robbins, 1978), which scaled all responses rather than just higher level statements, and the C index (Lind, Hartman & Wakenhut 1985; Lind, 1995), which added weight to the scale of the gap between levels. However, Evens (1995) assessed many of the previously presented indexes plus some novel ones against the P index and found the P index consistently aligned to expected constructs better than alternative indexes.

In 1997, Rest, Thoma, Narvaez and Bebeau developed the N2 index, which added the degree to which lower stages are rated lower than the ratings of higher stages to a P score. To further discriminate between levels of moral development, the N2 index also weights the distance of earlier stages to the distance of higher stages. Including the N2 index, Rest et al. (1999b) published the DIT2. This included five dilemmas rather than six and updated the language. Rest et al. (1999b) also encouraged researchers to develop their own moral dilemmas for use on the test. Despite efforts to discredit the test on the basis of it being moderated by political allegiances (e.g., Elmer, Renwick, & Malone, 1983), the DIT and

especially the DIT2 appear to be the strongest assessment of moral reasoning (Bailey, 2011). It is worth noting of course, that moral reasoning does not necessarily align to moral behaviour.

### 2.3.2. Moral Values

The structural-developmental approach to assessing morality described above used the idea of values when referring to higher-level reasoning. For example, Kohlberg (1976) refers to the ability to recognise that values are held relative to a group when describing stage five of his model regarding social contract. However, they are assessments primarily of reasoning and not ordering of values. Being able to identify the extent to which an individual identifies with and prioritises values has been the source of significant discussion in morality measurement.

#### 2.3.2.1. Rokeach Value Survey

Rokeach (1973, p. 5) defined a value as "an enduring belief that a specific mode of conduct or end-state of existence is personally preferable to an opposite or converse mode of conduct or end-state of existence". In doing so, he presented the Rokeach Values Survey (RVS), which contained two lists of values; an instrumental list and a terminal list. Instrumental values referred to modes of conduct containing moral values, such as honesty and love, and competence values, such as ambition and intellect. Terminal values are considered more end-states of existence, containing personal values such as an exciting life and happiness, and social values, such as world peace and equality. The RVS presents participants with two lists of 18 values for the respondent to order in terms of priority to them personally. Several studies have provided tweaks to the RVS, such as Mueller and Wornhoff (1990), who tried to better distinguish between personal and social values.

Assessing values has been used in a sporting context to examine athlete values on numerous occasions (e.g., Davis & Baskett, 1979; Lee, 1977, 1986; Symons, 1984; Wilcox,

1980) but not in recent times. The lack of use of the RVS since this time can be attributed to several criticisms that it has received regarding its lack of reference to commitment to values, omission of justice, lack of coherence, and ambiguity. Perhaps the most problematic limitation of the RVS is the lack of reference to commitment to values. This has been highlighted by Rankin and Grube (1980), Ng (1982), Miethe (1985), and Bredemeier and Shields (1998). By merely ranking values in order of priority, the respondent is making no inference about their level of commitment to them. In particular, all that can be observed is that they prioritise one above another. To say that a particular value is placed at the top of a list and that another person places that same value further down their list, does not mean that the respondent placing it at the top of the list is more committed to it. Indeed, one respondent may be relatively uncommitted to all of their values when compared with another respondent.

The omission of justice, among other values, was questioned by Braithwaite and Law (1985). Rokeach (1973) acknowledges that the lists are ipsative, in that the respondent must make a forced choice within a pre-set framework, but the omission of a justice or truth value appears considerable. Heath and Fogel (1978) suggested that the use of instrumental and terminal value lists was too broad to gain any real coherence. In a highly critical report on the RVS, Heath and Fogel presented two empirical studies that suggested respondents merely indicated the importance of values, with no congruence to a model of terminal and instrumental values. They went on to suggest that values should be seen as an orientation, or a cluster of values to generate any real meaning. The RVS was further questioned by Bredemeier and Shields (1998), who compared ranking values such as wisdom, friendship, national security, and a world of beauty to making a list of apples and oranges. The lack of coherence outlined here lies in the value of ranking values, and indeed, if there really is any value to it at all. If someone were to rank national security above a world of beauty, what difference does this make? It is difficult to see any real coherence in doing so other than a

potentially interesting discussion point. This was addressed further by Turiel (1983), who criticised the ambiguity of the RVS. In particular, Turiel's issue was that the interpretation is ambiguous, as individuals project their own meaning onto each value from the outset.

Schwartz (1992) defined a value by the existence of five key features; (a) a belief, (b) pertaining to desirable states or modes of conduct, (c) transcending specific situations, (d) guiding the selection or evaluation of behaviour, and (e) ordered by relative importance. With this in mind, Schmitt, Schwartz, Steyer, and Schmitt (1993) develop a method of assessing values through complex testing of factorial validity and measurement invariance. This culminated in Schwartz (1994) presenting a list of values including types and content. Using 36 samples from 19 countries, Schwartz constructed an extensive list of first and second-order values. Though thorough in its design and analysis, the length of values and debilitative complexity of any model around this highlights the difficulty of using values to begin to make judgements on moral conduct. These value measures have been used in several contexts, but not in sport.

#### 2.3.2.2. Current Life Orientation Scale

An alternative value-based scale was developed by Madhere (1993), who proposed the Current Life Orientation Scale. This scale consists of 40 items that reflect five value dimensions; faith and spirituality, freedom and solidarity, love and intimacy, talent and intellect, and financial success and power. The scale also contains three open-ended questions to allow respondents to elaborate on their answers. Validity of the Current Life Orientation Scale was assessed by examining internal consistency and correlations with associated concepts. While this raised no issues, the psychometric properties of the scale have never really been examined. The open-ended aspect of the instrument in truth offers very little, as it cannot be analysed quantitatively and lacks sufficient depth to be analysed qualitatively. The scale also suffers from the same limitation of all value-based inventories, the values appear to

have been subjectively chosen. Indeed, the values included in this scale, such as faith and spirituality, are open to interpretation and are not necessarily aligned to any moral perspective. The scale is more an exploration of participant views on five aspects of modern life.

While values are clearly important in understanding morality and sportspersonship, they do not necessarily predict behaviour. The extent to which an individual is prepared to stick to their values, intend to behave in accordance to those values, and then act in accordance to those values is significant. It is therefore vital that any measure of moral values is able to demonstrate predictive validity with genuine intention and ultimately, observed behaviour.

## 2.4. Moral Disengagement

Moral disengagement, as described in the previous chapter, seeks to explain how individuals cease adhering to normal moral values, instead electing to act immorally. Bandura (1991) first characterised moral disengagement by identifying eight mechanisms or psychological manoeuvres; moral justification, euphemistic labelling, advantageous comparison, displacement of responsibility, diffusion of responsibility, distortion of consequences, and attribution of blame. At this time however, no psychometric measure was published.

### 2.4.1. Moral Disengagement Scale

Bandura et al. (1996) developed the Moral Disengagement Scale. Using a sample of 815 children, the authors developed a large pool of items and filtered out those deemed to be ambiguous. They were left with a 32-item scale representing the eight mechanisms of moral disengagement, assessed on a three-point Likert-type scale. Following principal component analysis however, no dimensions emerged and a single-factor model was used. This unidimensional measure explained only 16.2% of the overall variance. Although the authors

point to a Cronbach's alpha score of .82 as a sign of reliability, this is to be expected in a 32-item unidimensional measure. Consequently, this has not really been used and many moral disengagement studies have adopted more qualitative approaches. In sport, this has been amended (Boardley & Kavussanu, 2007) and presents a much better fitting model. This is reviewed later in this chapter.

## 2.5. Measures of Morality in Sport

Sport often provides a unique stage for observing and examining moral decisions and behaviours. The very structure of sport is designed to present a desirable goal and then place obstacles such as rules and opponents in the way of the goal. Participants therefore will choose to work within the rules to reach their goal or seek a way around the rules. Of great benefit to researchers, is that this is also scheduled for a particular time and place. Consequently, measurements of morality in sport have been frequent, with varying success.

### 2.5.1. Play and Game Orientation Scales

Most early measures pertaining to morality in sport were almost exclusively attitude based. In particular, the focus of such measures was on identifying the extent to which participants are oriented towards participation or performance. Discussed below are the main attitudinal measures and the research conducted using them.

#### 2.5.1.1. Webb Scale

Early sport-specific measures of morality were predominantly interested in whether participants, normally children, held a recreational, play orientation or a more competitive, professional orientation when viewing or participating in sport. The most commonly used of such measures, and the earliest recorded sport-specific measure, was the Orientations toward Play Scale (Webb, 1969). Often referred to as the Webb scale, participants were required to respond to the question "What do you think is most important in playing a game: to play as well as you can, to beat the other player or team, or to play the game fairly?" Responses to

this single question were placed on a continuum anchored by two orientations; *play* and *professional*. The play orientation values fairness as the greatest concern, while the professional orientation emphasises the importance of winning. The response referring to playing well (skill mastery) is considered to lie in the middle of these two orientations. The Webb scale is a very simple measure but clearly establishes priorities and an insight into the perspective of the respondent. Through its simplicity, the Webb scale, and variants of it have been used extensively by sport psychologists and sociologists.

Continuing from Webb's work, the most commonly examined effects regarding professional orientation are age and gender. Maloney and Petrie (1972) replicated Webb's work on a sample of 567 Canadian students and reported very similar findings. Specifically, they found that males held more professionalised attitudes, that attitudes became more professionalised with age, and that those most involved in athletic participation demonstrated a greater increase in professionalised attitudes. Mantel and Van der Velden (1974) suggested that the organisation of sport is important, finding that structured, organised, and competitive sport enhanced a professional orientation.

Kidd and Woodman (1975) developed a very similar simple four-item measure of orientation towards winning and found that males were more oriented towards winning than females, who were more oriented towards fun than males. This, with other reviewed papers, led Loy, Birrell, and Rose (1976) to conclude that attitudes in sport were largely a function of social identity and gender. Sampling over 1,000 from each sex, McElroy and Kirkendall (1980) further supported the sex differences, surprisingly finding no relationship with parental influence. Blair (1985) examined effects for age and gender, finding that attitudes to professionalism increased gradually with age, more so in male participants. Simple differences between age and gender however did not provide real implications. Knoppers, Schuiteman, and Love (1988) assessed the competitive environment of female tennis players.

Using the Webb scale, the authors found that those in a more competitive environment were more oriented towards professionalism and winning. The increased professionalism orientation in those competing in sport provides an interesting debate regarding character development and whether sport is a positive vehicle for its development. Nicholson (1979) examined attitudes evident in female students who participated in sport and those who did not. Her findings were mixed, as those participating in sport reported more ambition and competitiveness, but no more happiness. Nixon (1980, cited in Bredemeier & Shields, 1998), using questions informed by the Webb Scale, examined sportspersonship and orientation among 525 undergraduates and reported that females value sportspersonship more highly and winning less highly than males.

Despite its extensive use, the Webb scale has been absent from virtually all sport psychology literature for around 25 years after attracting several criticisms. Most critically, the scale has the same limitation of the RVS in that it applies only rank ordering, which only indicates relative priority. Knoppers (1985) suggested that to make any real inferences, the magnitude of the value and/or the psychological investment needs to be quantified. The format of the scale has been questioned by some (e.g., Kidd & Woodman, 1975; Snyder & Spreitzer, 1979), while the content has concerned others (e.g., Knoppers 1985; Knoppers et al., 1988; McElroy, 1981). To address the content issue, some have recommended including the value of fun (Bredemeier & Shields, 1998). One of the most frequent criticisms of the Webb scale has been the way that data is categorised (Knoppers, Shaw, & Love, 1984; Loy et al., 1976; Petrie, 1971a, 1971b; Sage, 1980; Thebarge, Curtis, & Brown, 1982).

The predominance of its use in research and interesting findings for almost two decades however, suggest that there is merit in the Webb scale. Criticisms are more aimed at the format, the content, and the use of data. The idea of holding a different perspective on

winning, and the attitude towards that remains valid and is perhaps wrongfully neglected by some recent research.

#### 2.5.1.2. Game Orientation Scale

Identifying the limitations of the Webb scale, Knoppers, Schuiteman, and Love (1986) developed the Game Orientation Scale (GOS). In particular, Knoppers et al. attempted to overcome the issue regarding the lack of ability of the Webb scale to assess the magnitude of the value/priority by using a 7-point Likert-type scale instead of a ranking system. Specifically, the GOS presented participants with two scenarios; one a recreational, informal game with friends and the other a competitive, state high school basketball championships. Bredemeier and Shields (1998) in their review of previous measures welcome this change but question whether ranking should also be included to distinguish between identical values. To date, there is little published literature that has used the GOS, and such methods are seldom even referred to in recent research. Although orientation scales providing a simple assessment of attitude certainly progressed measurement, they are largely atheoretical, not based on a conceptually valid definition of sportspersonship.

### 2.5.2. Values and Moral Content Assessments

There have been several approaches towards assessing values or moral content in sport. Value based judgements hold the same limitations in sport as the RVS has outside of sport, as content can be difficult to relate to actual behaviour. Here, two scales that fall into this category are reviewed.

#### 2.5.2.1. Hahm-Beller Values Choice Inventory

Hahm, Beller, and Stoll (1989) adopted a deontological approach to examining morality in sport. That is, an approach that examines morality by the extent to which individuals are bound by rules, a sense of duty, and obligation. To do so, they developed the Hahm-Beller Values Choice Inventory (HBVCI), which presents 21 sport-based scenarios to

which respondents note their level of agreement with the action on a five-point Likert-type scale. The HBVCI contains three specific values; honesty, responsibility, and justice, and assesses the extent to which participants adhere to these. The inventory is based on one major assumption; that the extent to which respondents agree or disagree with the scenario is an assessment of moral adequacy. The issue here is that the authors of the HBVCI offer no evidence that some values and/or choices are philosophically superior to others. This issue has not been encountered with previous measures on values, as participants on other measures are free to offer an opinion. In moral reasoning assessments, such as the DIT, it is the complexity and perspective of the reasoning that is of value. The danger of the HBVCI is that it claims that some responses, and therefore moral choices are correct, while others are not (Bredemeier & Shields, 1998).

The use of the HBVCI has largely been limited to a few intervention-based studies from the same research group. Specifically, Beller and Stoll (1992) and Stoll and Beller (1993) used it to assess the effectiveness of a programme designed to improve moral reasoning. Stoll, Beller, Cole, and Burwell (1995) compared moral reasoning adequacy of different populations.

#### 2.5.2.2. Moral Content Judgment in Sport Questionnaire

Proios (2010) sought to develop a measure of judgements on moral content in a sport context. Kohlberg's (1969, 1976) work on cognitive-developmental approaches to morality was used to heavily influence the Moral Content Judgment in Sport Questionnaire (MCJSQ). In particular, Proios examined elements suggested by Colby and Kohlberg (1987) in the MJI. Five elements were used; normative order (focus on obedience to a system or set of rules), fairness (focus on justice), egoistic utilitarianism (focus on consequences for oneself), social utilitarianism (focus on consequences for team), and harmony-serving (focus on consequences reflecting on self-respect and dignity).

Proios (2010) firstly developed 35 items and administered this to 864 participants but found significant issues during exploratory factor analysis. Consequently, the items were reviewed and a 27-item scale was then distributed to a further 355 participants. This time, exploratory factor analysis yielded a five-factor, 25-item model. The 2010 publication charts the attempted validation of this scale, administering the MCJSQ to 188 participants aged 19-25 to be subjected to content and construct validity analyses. There were some content issues, as internal consistency was relatively low ($\alpha$ = .63 to .78) and confirmatory factor analysis fit borderline (CFI = .88). To further examine the validity of the new scale, scores were predicted by task orientation from the Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda & Nicholls, 1992). Further, expected correlations were found with sportspersonship, as measured by the Multidimensional Sportspersonship Orientations Scale (MSOS; Vallerand et al., 1997).

Although the MCJSQ currently presents some limitations, it appears to have potential in further investigating the role of moral judgements in sport. The low internal consistency of some scales should be addressed, a larger sample for model testing sought, and perhaps further examination of the factorial validity. It is surprising however, that there has been no further use of the MCJSQ since its publication.

### 2.5.3. Prescriptive Judgement Methods

Judgement is clearly an important aspect of identifying morality. Judgement and moral reasoning is rooted in the structural or cognitive-developmental approaches adopted by researchers like Kohlberg and Rest discussed earlier. Effectively, the aim of a prescriptive judgement method is to assess morality by analysing the extent to which respondents judge certain acts to be acceptable or not. The benefit that this method has is that it uses actual behaviour for participants to comment on.

#### 2.5.3.1. Injurious Sport Acts Series

In an attempt to investigate if there were differences in how performers accepted potentially injurious rule-violating behaviours in sport, Silva (1983) developed the Injurious Sport Acts Series (ISAS). This contained a pool of 25 slides representing some form of foul play in sport. Silva was interested in examining effects for gender, level, and years of participating in sport. To achieve this, 203 high school and college athletes and nonathletes were shown eight slides and requested to identify the extent to which they deemed each act as legitimate on a four-point Likert-type scale. A significant effect was present for gender, with males legitimising more injurious acts, but other differences were not detected.

Bredemeier et al. (1987) used the ISAS and adapted it to include a mixture of rule-violating and non-rule-violating scenarios. Twenty-five slides were reduced to nine by coaches and physical educators based on an agreement scoring system. The slides include acts such as a legal punch in boxing and an illegal basketball trip. Participants were again required to respond by identifying how acceptable they believed the act was. The ISAS has been used very little since its initial publication, but influenced proceeding work on the continuum of injurious acts.

#### 2.5.3.2. Continuum of Injurious Acts

Bredemeier (1985) outlined the shortcomings of some existing research in sport-based morality. Specifically, she suggested that the reliance on social learning, while appropriate for examining overt behaviour, failed to explain athletic aggression and, more importantly, the judgement processes involved. Therefore, using a structural-developmental approach, Bredemeier examined the extent to which performers legitimised potentially injurious acts. To determine this, she developed the Continuum of Injurious Acts (CIA). This comprised a set of six cards that depicted sports acts with increasingly serious consequences. The six acts represented (a) nonphysical intimidation, (b) physical intimidation, (c) making an opponent

miss several minutes of play, (d) eliminating an opponent from a game, (e) injuring an opponent so that they will miss the entire season, and (f) permanently disabling an opponent. Bredemeier established a score for each participant at the point which they reached their "ceiling card", meaning they would not legitimised the act.

Using 40 basketball players, the CIA was found to negatively correlate with moral reasoning, measured using moral dilemmas (Bredemeier, 1985). However, these correlations were only moderate. Bredemeier also examined how participants responded in hypothetical and engaged conditions. The engaged condition required participants to identify real experiences, whereas the hypothetical condition presented scenarios. Legitimacy judgements between hypothetical and engaged conditions were related ($r$ = .68), but there was a distinct difference. This would raise questions over the likelihood that legitimising an act would be related to actually undertaking that act. However, this was examined by Ryan, Williams, and Wimer (1990). The CIA was developed using basketball players and contained basketball-specific scenarios. Ryan et al. examined the relationship between perceived legitimacy and behavioural intentions in girl's high school basketball. This included a further question appended to each act stating "would you do it?" At the end of the season, participants completed self-report forms on the frequency of occasions that they has displayed athletic aggression. Multiple regression analysis reported that perceived legitimacy accounted for 29.5% of actual aggression, based on the self-report measure. This supports the inclusion of perceived legitimacy either as a related construct to sportspersonship, or a component within sportspersonship.

Duda et al. (1991) examined the relationship with goal orientation, sportspersonship, and the perceived legitimacy of injurious acts. The authors used the CIA but added response categories on a Likert-type scale rather than using a ceiling card. This enhances the suitability of the measure for parametric statistical analyses. Duda et al. presented each scenario

followed by a simple question "Is this ok?" Responses were permitted between 1 = *strongly approve* to 5 = *strongly disapprove*. Although the authors reported relationships between goal orientation and sportspersonship, and goal orientation and legitimacy of injurious acts, frustratingly, they did not report the relationship between sportspersonship and injurious acts. It would have been useful to determine the extent to which these are related. Moreover, as they conducted a principal component analysis on the sportspersonship scale (adapted from Lakie's, 1964 Competitive Attitude Scale), they could have included the CIA items to perhaps subsume the legitimacy of injurious acts as a component of sportspersonship.

The CIA has been used sporadically in several studies. In the last 25 years, it has appeared in the peer-reviewed studies discussed and by two others. In 2001, Kavussanu and Roberts used the Duda et al. (1991) adapted version with a five-point Likert-type scale, again in basketball, but adapted some of the scenarios. Finally, Miller et al. (2005) adapted this further to relate to competitive football. The authors used two items presented by Kavussanu and Roberts and re-wrote them to relate to football scenarios, including seven response conditions, where participants indicate their level of agreement to each statement such as "this action is ok", "this action is ok if the opponent did it first", and "this action is ok if your coach asks you to do it". After presenting good internal consistency, construct validity, and predictive validity across several studies, it is somewhat puzzling that the CIA has been neglected from other research examining sportspersonship.

#### 2.5.3.3. Judgments about Moral Behavior in Sport Questionnaire

Stephens, Bredemeier, and Shields (1997) developed the Judgments about Moral Behavior in Sport Questionnaire (JAMBYSQ) to aid research into the moral functioning of youth sport. The JAMBYSQ uses scenarios specific to soccer and examines the respondent's self-described fair play action tendencies, legitimacy judgements, moral motives, and perception of team norms. The three scenarios relate to lying to an official,

hurting an opponent, and violating rules. To provide some evidence of validity for the measure, Stephens et al. explored the relationships between the JAMBYSQ and measures of competitiveness, goal orientation, and coaching. This presented some support, though equivocally so.

The JAMBYSQ has been seldom seen in research since the paper on its construction. This is because the measure was designed specifically for a narrow research project. This project examined the moral functioning of 212 female soccer players aged 9-14. Consequently, its use is limited. There is also fairly scant detail provided on how the measure was initially developed. It appears that the authors relied on their own interpretation of the previous literature for its construction rather than any empirical methods. Stephens et al. (1997) developed something quite different to most measures, certainly in a sport context. It is somewhat of a shame therefore, that their research was never developed further to be able to present a genuine operationalised model and measure of moral functioning.

### 2.5.4. Moral Disengagement in Sport

Earlier, the moral disengagement scale developed by Bandura et al. (1996) was briefly discussed and it was highlighted that the model failed to explain a significant proportion of variance and did not find any subfactors. In the sport literature, the use of moral disengagement has been steadily growing and has been quantitatively assessed in several studies.

#### 2.5.4.1. Moral Disengagement in Sport Scale

Boardley and Kavussanu (2007) developed and validated the Moral Disengagement in Sport Scale (MDSS) using the eight factor model identified earlier in this chapter. Boardley and Kavussanu's two-part study initially examined the eight-factor structure but moral justification and euphemistic labelling presented a factor loading greater than one, making the model inadmissible. In effect, this means that the factors were not distinct and were therefore

merged. The authors then examined if any other factors were not empirically distinct and merged diffusion and displacement of responsibility to present a six-factor model. A second study yielded an acceptable model fit for a six-factor, 32-item scale comprising of; conduct reconstrual, nonresponsibility, advantageous comparison, distortion of consequences, dehumanization and attribution of blame.

The distinctiveness of moral disengagement mechanisms is something that requires further support. Bandura et al.'s (1996) study was intended to discuss mechanisms separately but could only use a single-factor structure. In developing the MDSS, Boardley and Kavussanu (2007) found medium to high correlations (.54-.90). It is not conclusive how empirically distinct each factor is. Had Boardley and Kavussanu conducted exploratory structural equation modelling to supplement their confirmatory factor analysis, the degree to which each factor is distinct would have been easier to identify.

Boardley and Kavussanu (2009) developed a shortened version of the MDSS (referred to as MDSS-S) as a unidimensional alternative. This contained only eight items and was proposed for studies when researchers were only concerned with overall moral disengagement rather than individual mechanisms. This is only possible because of the interrelations between each MDSS factor. There appears to be value in assessing moral disengagement as a unidimensional concept, but researchers should use caution when wishing to distinguish between mechanisms of disengagement.

### 2.5.5. Moral Behaviour in Sport

Assertions of morality on the basis of observed behaviour is certainly not a new concept. Piaget (1932) was the first notable contributor to the field. The first notable development in assessing moral behaviour in sport was the unpublished but frequently cited Horrocks (1979) Prosocial Play Behavior Inventory (HPPBI). The HPPBI contains 10 behavioural items to rate students on including arguing, teasing, sharing, and complaining.

During its conception, the inventory was positively correlated with moral reasoning. It has been used in several studies including Gibbons et al. (1995), who used it to measure moral behaviour when assessing the efficacy of a moral development intervention programme.

Good and poor sporting behaviours are often most readily described by examples and measured similarly. Weiss and Smith (2002) and Sage, Kavussanu and Duda (2006) measured good and poor behaviours by identifying a long list of sport-specific actions for participants to select the extent to which they undertake such actions. More recently, the Prosocial and Antisocial Behavior in Sport Scale (PABSS; Kavussanu & Boardley, 2007) has provided a psychometric assessment of moral behaviour. Recently, an assessment of coaches' behaviour has been presented by Bolter and Weiss (2012, 2013) to enable the measurement of the influence of coach behaviour on athlete behaviour. These key scales are discussed in this section.

#### 2.5.5.1. Prosocial and Antisocial Behaviour in Sport Scale

Kavussanu and Boardley (2009) applied Bandura's (1999, 2002) concept of proactive and inhibitive to sport by developing the PABSS. The authors, with reference to Bredemeier and Shields (1998), claim that this is a necessary and long-awaited development for the sport morality literature. Kavussanu and Boardley developed the PABSS as an instrument capable of making generalisations across contact team sports, as previous measures of prosocial and/or antisocial behaviours had only used football players in the UK (Kavussanu, 2006; Sage et al., 2006; Sage & Kavussanu, 2007a). The development of the PABSS included participants from a range of team sports, though still all UK-based. Following scale refinement, a four-factor, 20-item solution emerged and provided a good model fit. The initial PABSS testing indicates that it has good psychometric properties. The four-factors identified by Kavussanu and Boardley (2009) are; prosocial teammate, prosocial opponent, antisocial teammate and antisocial opponent.

The prosocial teammate subscale refers to proactive demonstrations to benefit teammates such as encouraging or congratulating them. Conversely, the antisocial teammate subscale highlights times when one has failed to overcome inhibitive morality and acted in an antisocial manner such as arguing with or criticising a teammate. The labelling of moral behaviours as prosocial and antisocial suggests that morality is predicated on providing a positive social environment. The prosocial opponent subscale denotes occasions when the performer has acted in the best interests of the opponent rather than gaining victory such as helping an injured opponent. The antisocial opponent items include distracting, fouling, injuring and physically intimidating an opponent. Clearly, this subscale has many more common examples than prosocial behaviour toward an opponent. Theoretically, these subscales should oppose each other and therefore logically, be of similar value.

The PABSS should be considered as a positive step forward in moral behaviour research; however there are concerns over the applications. In particular, there is no consideration of officials or rules, there is a disproportionate amount of antisocial behaviours included, and it is a simple self-report of behaviour that could otherwise be observed.

One would expect moral behaviour in sport includes actions towards the officials, as many team sports provide examples of prosocial and antisocial behaviour towards officials, such as shaking hands or demonstrating dissent. It is also significant in terms of potential applications, particularly regarding recent developments such as the English Football Association's Respect Campaign (The FA, 2008). Arthur-Banning et al. (2007) informatively argue that the prosocial behaviour towards referees is an important determinant in promoting sportspersonship and positive sporting behaviour in performers.

There is no rules dimension in the PABSS. An earlier version of the measure contained a subscale called "cheating" but this failed to positively influence model fit and was consequently dropped. One would have thought a scale purporting to measure moral

behaviour in sport would include a subscale related to abiding by rules. A further limitation is that the 20 items included in the scale display a disproportionate amount of antisocial behaviours. This implies that much of morality in sport is about inhibitive behaviours. For example, there are eight antisocial opponent behaviours and five antisocial teammate behaviours identified. In contrast, there are only four prosocial teammate behaviours and only three prosocial opponent behaviours, which underline the point made earlier regarding the difficulty in reducing such complex psychological reasoning to observed behaviours.

Finally, the use of the PABSS is confined to being an outcome variable in quantitative research, perhaps employing structural equation modelling. This is because it is simply a self-report of behaviour that could be observed. Most psychometric scales assess attitudes, reason, or orientations. Observed behaviour is clearly more accurate than self-report behaviour but it is difficult to obtain very large sample sizes. Consequently, the main purpose of the PABSS is to enable researchers to examine behaviour quantitatively in large samples.

#### 2.5.5.2. Sportsmanship Coaches Behavior Scale

A recent advance in the moral behaviour in sport literature was the development and initial validation of the Sportsmanship Coaches Behavior Scale (SCBS; Bolter & Weiss, 2012, 2013). This approach is unique, in that it considers the behaviours of sports coaches and the implied subsequent impact on attitudes towards sport participation. Informed by the PABSS, Bolter and Weiss (2012) used focus groups in high schools to identify coaching behaviours that influenced sportspersonship. This identified nine higher-order themes; sets expectations for sportsmanship, provides consequences for sportsmanlike and unsportsmanlike behaviours, leads discussions on sportsmanship, instructs how to behave in sportsmanlike and unsportsmanlike ways, models sportsmanlike and unsportsmanlike behaviours, focuses on improvement, prioritises winning, provides support, and disrespects

players. An expert panel constructed a 55-item inventory from these themes for a pilot study, which then presented a 40-item, eight-factor model.

Bolter and Weiss (2013) published a follow-up study examining the factorial validity of the SCBS, administering the scale to 418 adolescents. Despite achieving a very good model fit, there were collinearity issues, which led to the removal of some items and factors. The resultant was a five-factor, 15-item scale with the dimensions of (a) reinforces good sportsmanship, (b) punishes poor sportsmanship, (c) teaches good sportsmanship, (d) models good sportsmanship, and (e) prioritises winning over sportsmanship. The model fit was near perfect, but this has yet to be examined in an independent sample.

In a second part to the 2013 study, Bolter and Weiss aimed to demonstrate the criterion-related validity of the SCBS by examining a structural equation model with the PABSS subscales. This is problematic, as the data was collected in a cross-sectional design, so only statistical representation can be used to claim that coach behaviour predicted the moral behaviour of performers. A more robust examination would have been to use observed behaviours over the proceeding weeks or months. Although the structural model presented achieved good fit, which was presented as evidence of validity by the authors, the correlation coefficients between subscales from the SCBS and PABSS were no more than moderate. Indeed, the highest correlation was $r = .33$. Many expected correlates were low or unrelated. Overall, the SCBS is an interesting measure that opens a new avenue for research, but it is not clear what the effects of coach behaviour is yet. The model also needs to present a coherent structure in a variety of samples.

## 2.6. Measuring Sportspersonship

Early endeavours in sportspersonship yielded many unidimensional inventories with limited success, most of which were never used other than in the study in which they are presented (e.g., Dawley, Troyer, & Shaw, 1951; Flory, 1958; Floyd, 1939; Haskins, 1960;

Kirkpatrick, 1940; Kistler, 1957; McAfee, 1955). Since this time, progress in measures of sportspersonship has been slow and intermittent. Significant progress to date has only really been by some attitude scales, mainly developed in the 1960's, and Vallerand et al.'s (1996, 1997) Multidimensional Sportspersonship Orientations Scale. These measures relating to sportspersonship are discussed below.

### 2.6.1. Unidimensional Measures of Sportspersonship

Early attempts at measuring sportspersonship were simple unidimensional models. That is, that sportspersonship was an entity without dimensions. This was largely seen to be an attitude that people adopted towards participation. These attitude scales are discussed in this section.

#### 2.6.1.1. Attitude Scales

Lakie (1964) developed the Competitive Attitude Scale (CAS), which consisted of 22 items depicting unsportspersonship-like behaviours. Lakie developed the scale from an original 55 items presented by Brace (1958, cited in Lakie, 1964). The purpose was to assess the degree to which the respondent subscribed to a "win at all costs" philosophy. Lakie used a board of experts comprising of teachers, coaches, and an educational psychologist to systematically discard items deemed as ambiguous. The final 22 items were hypothetical situations from a range of sports such as "The coach of basketball team A removed his team from the floor in protest of an official's decision" and "Player A during a golf match made quick noises and movements when player B was getting ready to take the shot". Participants responded to each item by signifying their level of agreement on a five-point Likert-type scale from 1 = *strongly approve* to 5 = *strongly disapprove*. Two separate test-retest procedures yielded similar reliabilities ($r$ = .61 and .64) and internal consistency was good ($\alpha$ = .81). Duda et al. (1991) developed a basketball-specific version of the CAS, which extracted a three-factor solution after factor analysis. The three factors were; unsportsmanlike

play/cheating, strategic play, and sportsmanship. However, the strategic play and sportsmanship factors presented significant internal consistency issues. Further, Stephens, Bredemeier, and Shields (1997) used the CAS to develop a nine-item soccer-specific version, which identified three weak factors; bad sport, good sport, and strategic play. While the internal consistency of this was weak, it should be noted that authors cannot expect good reliability for such a scale based on the low amount of items per factor.

Johnson (1969) used the observations of Crawford (1957) to develop the Sportsmanship Attitude Scale (SAS). After initially developing 152 items, Johnson administered the questionnaire to 208 junior high school pupils before reducing this to 42 items based on scale value. This reduced version was then administered to approximately 500 pupils. This was cross-validated by judgements of sportspersonship by instructors. While this simple unidimensional scale seemed reasonable, Johnson was keen to point out that this was "only a step in the direction of accurate quantification of sportsmanship attitudes. Work remains to be done, particularly in the determination of the factors that compose the concept of sportsmanship" (Johnson, 1969, p.316). The SAS however has not been used in subsequent studies. Because the information was based on Crawford's observations, it contains the same limitations that Crawford encountered. Namely, the sample were all male and involved in US intercollegiate athletics but athletes were not used in the construction of the categories. Consequently, some of the categories lie outside of the temporal boundaries of sport (Bredemeier & Shields, 1998). This refers to aspects like recruitment and scouting, which are not encountered by those participating in the sport itself.

There is an inherent simplicity to like about attitude scales. At the time of their publication, they presented progress in our ability to assess sportspersonship. However, by simply presenting hypothetical scenarios, there is a real lack of a robust theoretical model from which to draw inferences. Such scales can serve a useful purpose in providing

intermediary variables in examining the relationship between moral reasoning and behaviour, but they do not adequately contribute to an understanding of sportspersonship as a multidimensional construct.

### 2.6.2. Multidimensional Measures of Sportspersonship

Rather than being just one attitude, sportspersonship can be considered as a series of attitudes, beliefs, and values. This approach indicates that the concept is in fact multidimensional. The first multidimensional definition of sportspersonship was posited by Vallerand et al. (1996). Progress in genuinely furthering our conceptual understanding and ability to measure sportspersonship since however, has been slow.

#### 2.6.2.1. Multidimensional Sportspersonship Orientations Scale

Vallerand et al. (1996, 1997) used their multidimensional definition of sportspersonship to develop the five-factor, 25-item Multidimensional Sportspersonship Orientations Scale (MSOS) incorporating the earlier identified dimensions of one's full commitment towards participation, respect for social conventions, respect for rules and officials, respect for the opponent and the lack of a negative approach. Several caveats regarding the use of the MSOS were outlined by Vallerand et al. (1997). Specifically, the negative approach factor did not load well and demonstrated low internal consistency ($\alpha$ = .54) and the respect and concern for the rules and officials did not correlate with a related hypothetical scenario in attempting to validate the measure. Further, the MSOS was developed on a sample of adolescents aged 10-18 years old. One may argue that an individual's moral interpretations and behaviours are shaped through interpersonal interactions throughout life and not as just children, such as when they reach a higher level of moral maturity. McCutcheon (1999) postulated several key psychometric and conceptual problems associated with the MSOS. McCutcheon suggested that the scale is susceptible to socially desirable answers, that commitment to athletic excellence is irrelevant to

sportspersonship, that the arousal-cost-reward model (Piliavin, Dovidio, Gaertner & Clark, 1981) actually predicts behaviour opposite to that implied by the way that the commitment dimension of the MSOS is scored and that two groups nominated for being high and low in sportspersonship score similarly on the MSOS. Of course, it is quite plausible to be fully committed to one's sport but act in an unsporting way. The MSOS also scores all subscales equally, which is a little inconsistent with the definition it is predicated on. This requires further consideration, as one would anticipate that respecting rules is of less moral value than respecting social conventions, as it requires compliance to prescribed behaviour rather than principled behaviour based on an individual's personal values.

Despite a clear factor structure, Treasure and Roberts (2001) suggested that respect for rules/officials may be separate dimensions rather than one, inferring an individual's ability to respect one and not the other supports this. A lack of respect for the rules may be viewed by the performer as victimless, while a lack of respect for the officials may be caused by depersonalisation. Rainey et al. (1992) propose that obedience towards sporting officials when lacking moral maturity is more personalised. Logically, this would support the separation of the dimensions.

Although there are several criticisms of the MSOS, it is comfortably the most widely-used measure of sportspersonship in recent times. Further, it is the only measure based on a coherent multidimensional definition of the concept. It clearly has some value and this is explored further in Chapter 4 of this thesis.

### 2.6.3. Extended Multidimensional Sportspersonship Orientations Scale

Stornes and Bru (2002) added a sixth dimension to the MSOS to create the Extended Multidimensional Sportspersonship Orientations Scales (EMSOS). Specifically, the authors added a dimension termed "instrumental aggression". The premise for the inclusion of this scale was that Stornes and Bru argued that the original MSOS needed to better embrace

antisocial behaviour and negative sportspersonship and the creation of a second negative subscale would achieve this. As aggression appears to be a somewhat separate concept however, authors are better advised to examine the link between sportspersonship and aggressive behaviour more than try to incorporate the two into a single measure.

## 2.7. Summary of Measures

Overall there have been many measures of morality both generally and within a sport context. While all of these have criticisms, they also have merit. Most measures are fairly narrow in focus, selecting cognitive reasoning, values, or behaviour. Perhaps the most broad and holistic approach is the one adopted by Vallerand et al. (1996, 1997), which refers to "sportspersonship orientations". The structural-developmental approaches of Kohlberg (1976) and Rest (1984) present more information on the higher-levels of moral reasoning, which would significantly redefine sportspersonship. The only sport-based measure to include an element of priority is the Webb scale. Table 2.1 presents a concise overview of all of the measures discussed in this chapter with a summary of their relative strengths and limitations.

**Table 2.1.**
**Overview of morality measures**

| Measure | Author(s) | Year | Structure | Strengths | Limitations |
|---|---|---|---|---|---|
| *Moral Dilemmas* | | | | | |
| Moral Judgement Interview | Colby and Kohlberg | 1987 | Semi-structured clinical interview, coded | • Thorough examination of moral reasoning<br>• Excellent reliability<br>• Clear construct validity | • Hypothetical dilemmas only<br>• Significant training required<br>• Time intensive<br>• Rigid structure inconsistent with observed judgements |
| Defining Issues Test | Rest, Cooper, Coder, Masanz, & Anderson | 1974 | A series of six dilemmas with 12 issues to consider on a Likert-type scale, enabling calculation of P score | • Quantitative measure of moral reasoning<br>• Easier to administer and quicker than MJI<br>• Clear construct validity<br>• Most widely used measure | • Hypothetical dilemmas only<br>• Requires only recognition of prefabricated responses, not production<br>• Not necessarily able to assess action<br>• P Score ignores much of data |
| Defining Issues Test 2 | Rest, Narvaez, Thoma, & Bebeau | 1999 | Five updated dilemmas to calculate N2 score | • Quantitative measure of moral reasoning<br>• Easier to administer and quicker than MJI<br>• N2 scoring index performs better than P index | • Limited dilemmas require expanding<br>• Requires only recognition of prefabricated responses, not production<br>• Not necessarily able to assess action |

| | | | | | |
|---|---|---|---|---|---|
| *Moral Values* | | | | | |
| Rokeach Values Survey | Rokeach | 1973 | Instrumental and terminal lists for prioritising values | • Simple and easy to use<br>• Broad range of values | • No inference about commitment to values<br>• Omission of important values<br>• No real world coherence<br>• Ambiguous |
| Hahm-Beller Values Choice Inventory | Hahm, Beller, & Stoll | 1989 | 21 scenarios assessed on five-point Likert-type scale | • Incorporates values and commitment to values<br>• Clear structure to scenarios | • Based on untested assumption of moral adequacy<br>• Claims of moral correctness |
| Current Life Orientation Scale | Madhere | 1993 | 40-item, five-factor scale with three open-ended questions | • More explicit than RVS<br>• Provides respondent with opportunity to explain their answers | • No real world coherence<br>• Claims of moral correctness<br>• No inference about commitment to values |
| *Play and Game Orientations* | | | | | |
| Orientations toward Play Scale | Webb | 1969 | Single question with three options to place on a continuum of play oriented to professional oriented | • Simple and easy to use<br>• Includes respondent perspective | • Over-simplified scale offers limited use<br>• No inference about commitment to value<br>• Over-simplified data categorisation |
| Prosocial Play Behavior Inventory | Horrocks | 1979 | 10-item unidimensional observation record | • Simple to use<br>• Actual behaviours observed | • Arbitrarily selected items<br>• Prosocial behaviour, not necessarily an assessment of morality |
| Game Orientation Scale | Knoppers, Schuiteman, & Love | 1986 | Two scenarios assessed on a seven-point Likert-type scale | • Simple and easy to use<br>• Includes respondent perspective<br>• Commitment to value quantified | • Over-simplified scale offers limited use<br>• Over-simplified data categorisation<br>• No ranking used |
| Competitive | Lakie | 1964 | 22-item, three-factor model assessed on | • Multidimensional<br>• Included notions of perspective | • Poor reliability<br>• Ambiguous factor structure |

| | | | | | |
|---|---|---|---|---|---|
| Attitude Scale | | | five-point Likert-type scale | | • Superseded by Webb Scale |
| Sportsmanship Attitude Scale | Johnson | 1969 | 21-item, single-factor scale | • Conceptual structure<br>• Simple to administer | • Limited sample used to originally collate categories<br>• Some categories outside temporal boundaries of sport<br>• Validity not assessed |
| *Moral Functioning* | | | | | |
| Judgments About Moral Behavior in Sport Questionnaire | Stephens, Bredemeier, & Shields | 1999 | Three scenarios with quantified judgement on acceptability | • Addresses moral functioning in youth sport<br>• Quantifiable dilemmas | • Equivocal construct validity<br>• Seldom used<br>• Validity not thoroughly examined |
| Moral Disengagement in Sport Scale | Boardley & Kavussanu | 2007 | 32-item, eight-factor model assessed on five-point Likert-type scale | • Includes cognitive reasoning<br>• Acceptable psychometric properties | • High correlation between factors<br>• More evidence required that mechanisms are empirically distinct |
| Moral Content Judgment in Sport Questionnaire | Proios | 2010 | 25-item, five-factor model assessed on a nine-point Likert-type scale | • Only measure of moral content in sport<br>• Adds unique approach to understanding moral judgements in sport | • Some weak internal consistencies<br>• Border model fit<br>• Very limited use in research post publication |
| Injurious Sport Acts Series | Silva | 1983 | 25-slide pool of images depicting rule-violating sport acts assessed by perceived legitimacy | • Ability to discriminate between high and low legitimacy levels | • Limited evidence that it can predict behaviour<br>• Lack of theoretical model<br>• Very limited use in research post publication |
| Continuum of Injurious Acts | Bredemeier | 1985 | Six scenarios depicting injurious acts with ceiling | • Adds structural development component to social learning approaches | • Sparse used in sportspersonship literature<br>• Further evidence required of |

| | | | | | |
|---|---|---|---|---|---|
| | | | card, later developed to five-point Likert-type scale | • Good internal consistency<br>• Good predictive validity | independence from sportspersonship |
| *Moral Behaviour* | | | | | |
| Prosocial and Antisocial Behaviour in Sport Scale | Kavussanu & Boardley | 2009 | 20-item, four-factor model assessed on five-point Likert-type scale | • Clear factor structure<br>• Outcome-focused | • No consideration of officials<br>• No consideration of rules/cheating<br>• Only applicable to team sports<br>• Simple self-report on behaviour |
| Sportsmanship Coaches Behavior Scale | Bolter & Weiss | 2013 | 25-item, five-factor model assessed on five-point Likert-type scale | • Clear factor structure<br>• Innovative<br>• Thorough validation process | • Untried in independent sample<br>• Limited predictive capabilities of moral behaviour of performers |
| *Sportspersonship Orientations* | | | | | |
| Multidimensional Sportspersonship Orientations Scale | Vallerand, Briere, Blanchard, & Provencher | 1997 | 25-item, five-factor model assessed on five-point Likert-type scale | • Clear definition and factor structure<br>• Thorough validity assessments | • Negative approach subscale poor reliability<br>• Full commitment subscale unrelated to sportspersonship<br>• Rules and officials subscale should be separated |
| Extended Multidimensional Sportspersonship Orientations Scale | Stornes & Bru | 2002 | 30-item, six-factor model assessed on five-point Likert-type scale | • Clear factor structure<br>• Evolution of previous model | • Same limitations as MSOS<br>• Lack of theoretical rational for inclusion of aggression dimension |

# Chapter 3:
# Methods of Developing and Assessing Psychometric Scales

## 3.1. Summary

The purpose of this chapter is to examine common methods of developing and assessing psychometric scales and to present the methods for the rest of this thesis. The chapter begins by reviewing methods of developing scales, including item generation and the use of exploratory factor analysis. Typical methods of assessing psychometric scales using various forms of structural equation modelling are discussed. Finally, the methods for the remainder of this thesis are presented.

## 3.2. Introduction

Assessment is a key component of psychology, whether it is for research, enhancing the understanding of a concept, or monitoring the efficacy of an intervention. Psychometric tests are frequently used to achieve such aims. Psychometrics appears to have derived from what Galton (1879, cited in Furr & Bacharach, 2008) referred to as psychometry, meaning the "art of imposing measurement and number upon operations of the mind" (p.9). It is complicated by our interest in unobserved variables. In effect, psychologists assess observed behaviours or reported beliefs or attitudes, and then make a conceptual leap to infer a measurement of unobserved variables, which are termed as various psychological attributes or orientations.

All measurements contain an element of uncertainty and variability. To legislate for this, common practice is to have an amount of measures of observed variables to account for each unobserved variable. In practice, this means an amount of items on a questionnaire to account for a subscale. Psychometric scales are potentially very complex because of the nature of dimensionality. A simple scale may require the researcher to sum the responses to reach an overall score. This is an example of a unidimensional scale. However, many scales, such as personality assessments, are multidimensional, in that they contain several subscales. Further, some of those subscales, or dimensions, may be correlated positively, negatively, or

uncorrelated. Sometimes, subscales are aggregated to present higher-order dimensions or overall scores. The purpose of this chapter is to critically review common practices in the development and validation of psychometric scales and present a robust protocol for achieving this within this thesis.

## 3.3. Methods for Developing Psychometric Scales

There is no firm rulebook for developing psychometric scales. There are however, common practices in the published literature. Ultimately, scale development has three main stages; item generation, model development, and model testing. Item generation is used to initially develop a scale of questions. Once a sample is collected, a model is developed, normally by extracted factors through exploratory factor analysis. After a model has been developed, it requires testing, which can be a long process including confirmatory factor analysis, examinations of the construct validity, and the test-retest stability. Experimental designs are best used to examine the predictive validity of a psychometric scale.

### 3.3.1. Item generation

A common protocol for generating items for a new scale requires the input of several practitioners and researchers to contribute potential items. These should then be cross checked by independent researchers to ensure content validity. While this is a general protocol, arising from typical processes reported by psychologists, there is also much variety in how items are generated. With such a variety of terms used in the literature, the first obstacle is clarity.

A clear consideration when developing a scale is just how many items it should include. The amount of items can become an important aspect of any psychological scale, as establishing good internal consistency and factorial validity rely on this. Further, the scale must be practical for researchers to use. Brannick (2003) suggests developing three times as many items as required prior to an exploratory factor analysis, as many items are discarded.

This can sometimes be difficult when there are potentially many dimensions. For example, Vealey, Hayashi, Garner-Holman and Giacobbi (1998) identified seven subscales of the sources of sport confidence questionnaire for exploratory factor analysis but generated only 42 items. If only one-third of these were to be retained, the authors would have been left with only 14 items, meaning two-items per subscale. This would cause significant reliability issues. Therefore, they could not remove items and it was difficult to achieve satisfactory model fit.

Many authors (e.g., Oppenheim, 1996; Streiner & Norman, 1995; DeVellis, 1991) provide similar suggestions to each other for the correct wording of items in measurement scales. Most frequent of these suggestions is to keep items as simple and as concise as possible. Oppenheim suggests that if a particular item is relatively long, it should be broken into small sentences for clarity. The same author also recommends avoiding proverbs, as these can promote an unthinking agreement. This is particularly relevant to a measure on morality, as there are many clichés used, especially in sport. Oppenheim also warns against double-barrelled questions, such as "do you own a car or a motorcycle?" as the question is based on the assumption that the respondent owns one of the two options. Alternatively, the respondent may see the questions as an "either/or" option. Another common difficulty in developing psychological scales is that the researcher is trying to assess complex unobserved variables but the respondent is likely to have no understanding of the theoretical topics. As such, one must be careful to avoid using terminology that will confuse the respondent. Brannick (2003) identifies issues with using absolutes such as "always" or "everybody". In a Likert-type scale, this can sometimes contradict the level of agreement required.

Demographic data collection can be more problematic than on first glance. Clearly, some categories are easy to identify, such as for gender or age. However, in sport, a common measurement is skill level. A difficulty arises here because not all sports progress at the same

levels. In some sports, progression from recreational level is to a club, then county and subsequently, national then international level. However, in other sports, the county level is not so appropriate, as full-time professional athletes are found at a more local level. Location may also influence this, as an athlete may be considered at county level due to a lack of quality in that sport in a particular county. This is also an issue when collecting data from participants in minority sports. In a mainstream sport such as football, there are almost 3000 full-time professional players in England and Wales. In a minority sport, someone not rated in the top 100 in the country is far from being elite. Being rated outside of the top 2000 would be considered obsolete. Furthermore, different countries have completely different structures. As such, it is recommended here that items pertaining to skill level should contain guidance notes such as "recreational: play for fun or with friends".

### 3.3.2. Exploratory Factor Analysis

Once items have been generated and examined for content validity, the next step is normally to develop a model, often through exploratory factor analysis (EFA). This process is often subjective however. Although the term "exploratory" suggests that one is trying to explore how many factors there are, the researcher, informed by existing theory, generally has an expectation of what will develop. Rather than strictly following the output from EFA, if this expectation is not realised, the instrument normally gets refined. For example, in developing the Sources of Sport-Confidence Questionnaire (SSCQ), Vealy et al. (1998) found that three of the seven factors extracted explained less than 10% of the variance put together. However, they were still kept and refined because the authors believed that those factors were significant indicators of the concept. It appears that a trade-off between explaining variance and remaining true to conceptual knowledge is sometimes required. Therefore, it is logical to analyse the data and scree plot, which provides a graphical representation of the eigenvalues by factor to determine the amount of factors that should be

extracted (Field, 2013). However, if the expected number of factors does not explain an acceptable amount of the variance, some items should be reconsidered prior to further validation procedures.

The amount of variation explained by a factor is represented by the eigenvalue, which is calculated by examining the distribution of values within a dataset. Many statistical packages (e.g., SPSS) have a default setting to extract all factors with an eigenvalue equal to or greater than one, as values greater than one indicate a positive explanation of some variance. It has also previously been common practice to extract all factors with such an eigenvalue, as they are more likely to explain a significant amount of the total variance. However, some researchers have suggested that this is too strict, and that more of the variance needs to be explained. Therefore, Jolliffe (1986) suggested that all factors with an eigenvalue equal to or greater than 0.70 should be extracted. A more subjective approach was recommended by Norman (1988), who demonstrated that eigenvalues of less than one can still generate positive reliability. In reality, the researcher will often extract the amount of factors that were expected, providing that an acceptable amount of variance is explained and it is conceptually viable.

A factor can be defined as a statistical entity that can be plotted on the axis of a graph (Field, 2013). The measured variables and their relative importance are calculated using EFA. The coordinates of these variables on the axis represent the correlation between the variable and the factor. This is the factor loading. To enable the calculation of the degree to which the variables load on the extracted factors, the axis can be rotated. Two categories of rotation exist based on the expected independence of the factors. An orthogonal rotation is preferred when a relationship between the factors is unlikely. In an orthogonal rotation, the axis is rotated but kept in a perpendicular position. There are several types of orthogonal rotation, though in practice, there is little substantive difference between them and varimax is by far

the most popular (Abdi, 2003). Depending on the technique used (e.g., varimax, quartimax, or equimax) the dispersion of the loadings of variables onto the factors is altered to maximise meaningful interpretation. In an oblique rotation, the axes are not perpendicular, as a relationship between factors is expected, which allows for the factors to be closer. Oblique rotation techniques include direct oblimin and promax. It is recommended by some that both orthogonal and oblique rotations be conducted (e.g., Stevens, 1992).

#### 3.3.2.1. Exploratory Factor Analysis versus Principal Component Analysis

Two types of variance are identified in factor analysis, common variance, and unique variance. The unique variance is variance that is specific to one variable (though error is not calculated). Common variance however, is the variance that is shared with other variables. This is known as communality. Principal component analysis (PCA) assumes that all variance is common and therefore, the communality measures the proportion of variance explained by the components that are extracted. This is considered by many to be a purely geometric abstraction (Dunteman, 1989). Factor analysis derives a mathematical model from which factors are estimated to be conceptualised into real world phenomena.

Though the common variance is not estimated for each variable as is routine in exploratory factor analysis, the terms are often used interchangeably (Field, 2013). The basis for this is that researchers have claimed that the differences in solutions between the two are negligible, and that when more than twenty variables are used with high communalities, any differences are very unlikely (Arrindell & van der Ende, 1985; Guadagnoli & Velicer, 1988; Schoenmann, 1990; Stevens, 1992; Steiger, 1990; Velicer & Jackson, 1990). Furthermore, this distinction is seldom applicable to a psychological context, as PCA and EFA are both undertaken to identify sets of correlated items. However, this has been fiercely contested, as others argue that the use of principal components should be limited in favour of true factor analysis (Bentler & Kano, 1990; Costello & Osborne, 2005; Floyd & Widaman, 1995; Ford,

MacCallum & Tait, 1986; Gorsuch, 1990; Loehlin, 1990; MacCallum & Tucker, 1991; Mulaik, 1990; Snook & Gorsuch, 1989; Widaman, 1990, 1993). The items that do not contribute (load) sufficiently onto a component/factor are generally discarded. Items associated with the remaining components/factors are averaged or summed to yield subscales. The rejection of some components or factors effectively introduces error terms into the equations and thus equates principal component analyses and factor analyses.

## 3.4. Methods of Assessing Psychometric scales

The assessment of psychological scales can be a somewhat controversial topic. This is largely due to the importance of it. Many theories, empirical studies, and pages in peer-reviewed journals are devoted to, or a consequence of a quantitative measurement tool. Moreover, testing outside of research (e.g., occupational, clinical or educational settings) can lead to significant income generation, as authors and/or companies own the copyrights of various measurement tools. With so many people requiring the use of quantitative psychological measurement, assessment must be meticulous, fair, transparent, and rigorous. From a research perspective, it is important to recognise that we do not directly test concepts, but rather we assess our measurement of concepts. For example, if attempting to identify whether extraverts are more moral, the researcher is actually testing whether a test of extraversion predicts a change in a test of morality, not the concepts themselves. This section identifies methods of assessment, including the variety of validity types. Specifically, confirmatory factor analysis, exploratory structural equation modelling and methods of validation are critically discussed. Limitations of various methods are provided throughout.

### 3.4.1. Validity

The concept of validity is of course of great importance when considering psychometric scales. Consequently, it is discussed endlessly in research and text books. A search on PsycINFO found that there were 8,119 peer-reviewed articles published between

2000 and 2012 that contained the term “validity” in the title. A further 40,381 listed validity in the abstract or key words in this time. Definitions of validity, and indeed the terms used are varied. Here, the three most commonly used overarching terms for validity; content-related, construct-related, and criterion-related are considered. Martin (2010) divides validity into phases for designing a measure, the first of which is the content validity phase, before going on to assess construct validity. It is after this stage where criterion-related validity is usually assessed.

#### 3.4.1.1. Content-related Validity

Content validity is the extent to which the items in a scale are representative of the domain (Kerlinger, 1986; Messick, 1975, 1980). Though clearly important, item-level analysis is seldom reported in studies (Yaghmale, 2003). Yaghmale identifies two distinct stages to assessing content validity; development and judgement. Content validity is often derived from a combination of reviewing literature, gaining representative samples from populations and from expert review (Burns & Grove, 1993). Once items have been developed using some or all of these sources, the content validity can be judged. One such method that provides appropriate rigour was presented by Waltz and Bausell (1983). Specifically, the authors developed the four-point content validity index (CVI). In this, a panel of experts judge each item on a scale of one to four for relevance, clarity, simplicity, and ambiguity. A proportion of agreement is then calculated, with scores $\geq .75$ generally considered strong.

The use of experts to obtain content validity can also be achieved through more qualitative methods. Several measures (e.g., Carolina Sport Confidence Inventory, Manzo, Ilva, & Mink, 2001) have used trained colleagues who understand the concept to overlook the items in the scale and give opinions or concerns. It has also been suggested that the participants who the measure is given to for assessing the validity should be asked about any

specific nuances (Vealey et al., 1998; Litwin, 1995). This could be achieved through a pilot study.

Factorial validity is commonly examined by researchers. This is effectively a subcategory of content validity because it is inward facing, testing the internal properties of a scale. Due to the scale of the discussion required on this topic however, it is discussed later in this chapter as part of structural equation modelling.

#### 3.4.1.2. Construct-related Validity

Construct validity is often referred to as an over-arching aspect of validity (Coaley, 2010). In effect, construct validity can be said to be the extent to which the relationship between the unobserved construct and the observed data measure the understood theory in a meaningful way. It can be assessed in a number of ways. Evidence of construct validity is initially derived from factor structure in the development of a measure. The use of a priori model testing, discussed under structural equation modelling here, is theoretically driven. Therefore, construct validity can be evidenced by theoretically sensible model fits.

Campbell and Fiske (1959) initially described construct validity by referring to convergent and discriminant validity. These are effectively subordinates of construct validity. Convergent validity is defined by a construct that correlates positively with theoretically associated constructs. Statistically speaking, this is defined by the extent to which a measure's variance is related with the variance of its underlying construct (Barrett, Phillips, & Alexander, 1981; Guion & Cranny, 1982). For example, it was established in chapter 1 that motivation and sportspersonship are empirically and theoretically related. Therefore, one would expect to observe such associations using a new measure. Conversely, in discriminant (or divergent) validity, inexplicable correlations should not exist. For example, a positive relationship between sportspersonship and deviance would be theoretically and conceptually

invalid. Equally, very strong correlations between two variables would suggest an element of redundancy (Kline, 2005).

A further method of assessing construct validity is to test known demographic differences. For instance, if it was reasonably conclusive that a particular concept had a significant gender difference, a similar difference may be assessed in developing the new measure. Pelletier, Fortier, Vallerand, Tuson, Brière, & Blais, (1995) used this method in gaining further support for the construct validity of the Sport Motivation Scale. Finally, structural equation modelling provides an appropriate format to examine predictive relationships between associated latent variables while providing estimates of measurement error. This is seldom used, perhaps because of the larger sample sizes required, but provides greater rigour than correlational analysis.

#### 3.4.1.3. Criterion-related Validity

Criterion-related validity requires the correlation of scores between the measurement scale (the predictor) and other measureable criteria (the criterion). This can be divided into predictive validity and concurrent validity (Coaley, 2010). Predictive validity refers to the measure predicting subsequent behaviour. This is often used in the workplace, where psychometric assessment predicts work output. Consequently, it is considered of great importance in occupational psychology. In sport and exercise psychology however, few studies report the predictive validity of a measure. To date, there have been no reported data on the predictive validity of a measure of sportspersonship. Concurrent validity is used to correlate the measurement scale with existing data or a validated benchmark. This is typically used when observation of immediate subsequent behaviour is unrealistic.

A common method of achieving both construct and concurrent validity, developed by Campbell and Fiske (1959), is the use of a multitrait-multimethod matrix (MTMMM). This matrix enables correlates of several traits observed by a variety of methods, for example,

respect for the rules of a game could be collected by self-report, observation, and an official's report. The correlates of these would establish the level of construct and concurrent validity.

A common issue facing researchers wishing to test criterion-related validity is the selection of an appropriate criterion. This is known as the criterion problem and has been cited consistently in personnel psychology since Fiske (1951). Essentially, the criterion is the label attributed to the measured variable that is objectively seen as the outcome. The difficulty arises because unlike most predictor variables, which are typically psychological constructs and were developed in an operationalised sense that enables measurement, criterion constructs require additional translations between the manifestation of the concept and the actual measurement, such as situational factors (Austin & Villanova, 1992). Said differently, as the researcher intends to observe a physical behaviour and infer that this was predicted by measured predictor variables, a host of other factors, such as their interactions with colleagues, can confound this.

One approach to reducing the criterion problem is to create a more controlled environment. By using experimental design, researchers can substantially reduce the number of confounding variables. In a sporting context, to examine something such as moral behaviour during an actual performance has many of these, such as pressure, prize money, audience, climatic conditions, and pre-existing rivalry with opponents. In a controlled experimental design, it is possible to remove many of these. The experimental design, therefore, offers researchers a much greater chance of identifying a criterion less affected by confounding variables. However, it is worth noting that this is a trade-off at the cost of real life observation. When aiming to measure moral behaviour, for example, some of those variables are realistic mediators. By controlling the environment, researchers encounter the possibility that the behaviour of participants, in a contrived and less personally meaningful situation to a real life performance, may be very different. It is in these instances when some

of the earlier identified confounding variables can be re-introduced. For example, while pressure of performing in a personally meaningful event was removed, an element of pressure can be reintroduced by the inclusion of prize money or an audience. Overall, the criterion problem should be considered substantial for those wishing to examine criterion-related validity. The selection of the research setting and an awareness of the compromises that this encompasses are of particular note.

### 3.4.2. Reliability

The reliability of a scale is typically concerned with its consistency. It is defined as the ratio of true variance to error variance (Cohen, 1960). There are a number of ways in which reliability can be assessed. The reliability of a scale indicates how free it is from random error. Two main indicators of reliability are internal consistency and test-retest stability.

#### 3.4.2.1. Internal Consistency

Internal consistency is the degree to which the items that make up the scale are all measuring the same underlying attribute. By far the most commonly cited measure of internal consistency is Cronbach's coefficient alpha (Cronbach, 1951). This provides an indication of the average correlation among all of the items and provides support for the homogeneity of the scale. Nunnally (1978) recommends a minimum level of .70, which appears to be interpreted as a golden rule by some. However, the use of a coefficient alpha has significant limitations. Specifically, it is significantly impacted by the number of items in a scale (Cortina, 1993), it does not consider multidimensionality in an interitem correlation matrix (Nunnally, 1978; Nunnally & Bernstein, 1994), and it underestimates reliability in congeneric measures (Raykov, 1997).

The extent to which coefficient alpha is affected by the number of items is substantial. Indeed, Cortina (1993, p. 102) stated that “alpha is very much a function of the number of

items in a scale". This can be best demonstrated by considering the formula to calculate alpha:

$$\frac{N^2 \times M(\text{COV})}{\text{SUM (VAR/COV)}}$$

where:

$N^2$ = the square of the number of items in the scale
$M$(COV) = the mean interitem covariance
SUM (VAR/COV) = the sum of all the elements in the variance/covariance matrix

The squaring of *N*, which is then multiplied, is responsible for ensuring that long scales will inevitably present a high alpha, even with very small positive correlations between items. Cortina (1993) further demonstrates this issue by comparing a hypothetical three-item scale with α = .80 but an average interitem correlation of .57. However, a hypothetical 10-item scale with α = .80 had an interitem correlation of only .28. The examination of the average interitem correlation has been recommended as a preferred alternative to Cronbach's alpha when there are less than 10 items in a scale (Briggs and Cheek, 1986).

Nunnally (1978) explained that Cronbach's alpha assumes perfect unidimensionality. This can become an issue when the correlations between items in a scale are not equal. Because alpha calculates the mean interitem correlation, it does not account for varying correlation coefficients in the matrix. Therefore, where variation is great, alpha is not an appropriate representation of internal consistency. Rather, Nunnally suggests looking for precision. Cortina (1993) suggests calculating the standard error of interitem correlations as a representation of precision, with scores closer to zero signifying greater precision.

Raykov (1997) identified the inability of alpha to correctly estimate reliability for congeneric measures. He defines congeneric measures as "measures of the same latent dimension in possibly different units of measurement and possible different precision" (p. 174). Raykov's solution is to calculate composite reliability (CR), which is a measure of the overall reliability of a collection of heterogeneous but similar items. This method requires the

computation of standardised factor loadings but is more appropriate for composites. Another method using standardised factor loadings is to examine the average variance extracted (AVE; Fornell & Larcker, 1981). Fornell and Larcker recommend that this should reach a value of .50. Some authors (e.g., Anderson & Gerbing, 1988) have recommended that researchers present both alpha values and AVE. Like alpha coefficients however, all of these are a function of the number of items. Schmitt (1996) stresses the point that alpha alone is not a clear representation of reliability, and that researchers should present a variety of estimates, one of which should be the inter-correlations of items.

#### 3.4.2.2. Test-retest stability

Test-retest stability, sometimes referred to as reliability, is a vital component of a psychometric validation (Kline, 2005). It refers to the extent to which a scale retains a degree of resistance to change. This is normally assessed by administering it to the same group of people on two different occasions. The premise is that stable measures will disregard environmental conditions and mood. Therefore, one would expect a fairly dispositional measure to retain high stability. The most common method of quantifying the test-retest stability of a scale is the use of correlation, with Pearson's *r* scores > .80 considered stable (Anastasi & Urbina, 1997; Kline, 1993). However, Nevill, Lane, Kilgour, Bowes, and Whyte (2001) and Lane, Nevill, Bowes, and Fox (2005) stress that the correlational approach has clear limitations. Specifically, they highlight that because correlation is a measure of relationship, not agreement, it is possible to derive a high *r* value, intraclass correlation, or kappa, with very limited or even no exact agreement at participant level. Therefore, this should be used in conjunction with other methods.

One alternative is repeated measures null hypothesis statistical testing. Schutz (1998) suggested using a repeated measures design MANOVA, though a paired-samples t-test would also be appropriate. It should be noted however, that high within-subjects variation could

negate individual variances and present a non-significant *t* or *F* value even if the measure were unstable. Wilson and Batterham (1999) suggested identifying the proportion of agreement. Specifically, they propose identifying the percentage of participants scoring within (±1) of their first score for each item. It is stressed that this should be conducted at item level, as should all test-retest analysis because subscale level has the ability to mask unstable items (Lane et al., 2005). The expected proportion of responses within this threshold of course depends on the number of response alternatives. Wilson and Batterham, Nevill et al., (2001) and Lane et al., only considered five-point scales. The most robust assessment of test-retest stability is structural equation modelling, as this enables the researcher to quantify measurement error (Marsh, 1993; Schutz, 1998). However, this method requires much larger sample sizes so should only really be used on samples with at least 5-10 participants per free parameter (Bentler, 1995; Bentler & Chou, 1987).

## 3.5. Structural Equation Modelling

Structural equation modelling (SEM) is a method used to establish the plausibility of a theoretical model and to estimate the degree to which each explanatory variable influence the dependent, or latent variable(s). SEM methods provide estimates of the strength of all of the hypothesised relationships within a theoretical model. This makes it easier to make inferences about the impact of one variable on another. This impact can be direct or indirect, through intervening or mediating variables.

Measurement error is always an important issue in any of the social sciences. Path analysis examining regression weights is a method of explaining relative variance among variables. However, a major downfall of path analysis was that it is unable to allow for this inevitable error. SEM however, acknowledges error and attempts to quantify it. According to reliability theory (Mehrens and Lehmann, 1984), variance can be partitioned into true variance and error variance. Furthermore, true variance can be divided into true variance that

is related to the dimension of interest (common variance) and reliable, but not applicable variance (unique variance). It is of key importance in measurement that any variables that assess common variance are included in the model.

The development and enhancement of software packages, such as LISREL, EQS, AMOS, SAS, and MPlus have made SEM far more accessible and is one of the primary reasons for the increase in popularity over the last two decades. However, as Biddle, Markland, Gilbourne, Chatzisarantis, and Sparkes (2001) point out, the increase in ease of use also means that it is easier to misuse, as the software does not require a sound understanding of the underlying principles of SEM. None of these techniques are able to completely achieve what would be ideal and firmly establish causality from correlation. However, they are capable of disconfirming a model. That is, each model is tested for a good fit, if the fit does not satisfy a priori parameters; the model is falsified and disregarded. The other potential models are deemed plausible and therefore analysed further.

### 3.5.1. Logic of Structural Equation Modelling

Logic and an in-depth understanding of the underlying principles are of key importance in SEM. To illustrate this, consider the following example from Maruyama (1998). Figure 3.1 presents a simple unidirectional model. The model suggests that variable 2, in this instance 'success at school', mediates between variables 1 and 3. However, consider the reverse of this model. Mathematically it is the equivalent but logically it is implausible. It is logically implausible because it is not possible that one's first job can dictate success at school, which then dictates family social class. There would need to be some chronological order for this model to be plausible. This example highlights the logical view that the researcher must take when using structural models. One must be careful not to lose this when immersed in statistics.


**Figure 3.1.**
**Simple chronological structural equation model from Maruyama (1998)**

As discussed earlier, researchers often examine the measure of a concept and not the concept itself. Typically in structural equation modelling, observed variables index the latent variables. For a psychometric measure, the items represent the observed variables and the subscales are the unobserved, latent variables. In structural models, Anderson and Gerbing (1998) advocate two stages; testing the measurement model, which examines the loading of observed variables onto latent variables, and testing the structural model, which includes regression paths between latent variables.

In all forms of modelling, correlations or covariances are divided into causal and non-causal. This is known as decomposition of effects. Causal effects may be direct or indirect (e.g., through a mediating variable). Non-causal relations may be due to shared antecedents (e.g., caused by a third variable) or unanalysed prior association (e.g., more than one independent variable accounting for the total association). Together, these effects/relations contribute the total correlation. Models typically include exogenous variables, where it is not possible to tell from where they are derived, and endogenous variables, as they are derived from within the model.

Central to understanding the interaction of latent variables in modelling are the notions of moderation and mediation. A moderator is a variable that changes the strength of an effect or relationship between two variables. A common example of this might be gender. It is feasible in studying sportspersonship that the gender of an individual may moderate the effect of motivation on moral behaviour. Mediators specify how or why a particular relationship or effect occurs, such as how ones sportspersonship orientation may mediate the

relationship between motivation and moral behaviour. Examining mediating variables allows researchers to calculate direct and indirect effects from one variable to another. To calculate the magnitude of the indirect effects, the path coefficients along the pathway in question are multiplied and summed. There is often debate amongst researchers about how much one should focus on the variability accounted for versus the overall fit of the model (e.g., Baron & Kenny, 1986). The best way around this is to consider both as equally important (Schumacker and Lomax, 1996).

#### 3.5.1.1. Collinearity, Errors and Identification

Interpretation of regression coefficients is relatively straightforward when the predictor variables are unrelated. However, when interrelations exist among these variables, problems of multicollinearity can occur. Problems of collinearity occur when a situation arises where a latent variable is effectively a linear combination of other observed variables. When multicollinearity exists in latent variables, often the solution is to drop one of the variables. The improvement of techniques has led to more sensitive measures that allow one to detect collinearity problems. Maruyama (1998) identifies nine ways to detect such problems including looking for high correlations, bouncing betas, and when the determinant of the correlation matrix of the predictor variables (eigenvector) approaches zero. The extent of collinearity can be assessed through examination of the inverse of the correlation matrix of the predictor variables, where large numbers along the diagonal suggest multicollinearity. If removing a problematic variable due to problems of multicollinearity is not a logical option, Schumacker and Lomax (1996) suggest further screening of the data for outliers, reducing the number of observed variables, or using an alternative estimation procedure.

Prior to estimating the parameters, identification problems must be resolved. To illustrate a typical problem, consider the following simple example from Schumacker and Lomax (1996). A theoretical model suggests that X+Y = some value, the data indicate that

X+Y = 10, yet it may be that no unique solution for X and Y exists. One solution is that X = 5 and Y = 5, another solution is that X = 4 and Y = 6, and so on. To solve such a problem parameter X may be fixed to equal 1, therefore Y must equal 9 and a unique solution is evident. There are three levels of model identification. The amount of information in the matrix relative to the parameters determines whether a model is under-, just-, or over-identified. Under-identified models cannot be solved as they have too many unknown parameters for the number of equations. Said differently, there is not enough information (equations) to solve all of the parameters in the model. Conversely, over-identified models have more equations than parameters and therefore many possible solutions when a unique solution is required. Ordinary least squares or maximum likelihood method are suggested for solving such a problem (Land, 1969). To achieve a just-identified model (unknown parameters equal to the number of equations), Schumacker and Lomax (1996) suggest beginning with as parsimonious model as possible. That is, keeping the number of free parameters as low as possible To enable identification, constraints are generally placed on observed variables to prevent them from loading onto latent variables that are not logically correct. It is the researchers' subjective decision where variables are allowed to load feely and where they are fixed. This is an important issue in the use of independent cluster models and confirmatory factor analysis, where typically, one parameter per factor is fixed.

### 3.5.2. Confirmatory Factor Analysis

Jöreskog (1969) developed confirmatory factor analysis (CFA) to examine psychometric models and the use of CFA has risen exponentially in recent years. Searches on SPORTdiscus revealed that 180 papers employing CFA techniques were published from 1990-1999, compared to 549 papers from 2000-2009. In part, this is due to the expansion of structural equation modelling methods that firstly require the researcher to obtain a satisfactory measurement of model fit before proceeding to the main analysis. This use has

added to the more traditional approach of using CFA purely to examine the factorial validity of a measure. In effect, this is an independent cluster model (ICM), which restricts all cross-loadings between items and subscales other than the one with the intended loadings to zero.

Theoretically, CFA represents an objective test of a theoretical model. In practice, conducting all factor analytic procedures requires a series of judgments. By far the most important judgment made in CFA is whether a model is deemed to be acceptable or not. Logically, the process of accepting or rejecting models is fairly simple, in that the aim is to avoid concluding that a good model is bad, and that a bad model is good (MacCallum, Browne, & Sugawara, 1996). This is typically achieved by examining the absence or presence of misspecifications, which are errors between the prescribed model and the estimated parameters. In structural equation modelling, of which CFA is one form, the goodness of a model is typically determined by the absence (good) or presence (bad) of misspecifications (Saris, Satorra, & van der Veld, 2009).

It is clear that CFAs offer a useful tool when judging the effectiveness of an instrument. However, there has been a growing tendency to use them as a definitive measure of the psychometric quality of tests. This is clearly open to debate and a number of authors have questioned the way they have been used (e.g., Marsh, Hau & Grayson, 2005; Marsh, Hau & Wen, 2004).

## 3.6. Cut Off Values

Hu and Bentler's (1999) paper entitled "Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives" is cited in almost all published psychology articles when interpreting the results of a structural equation model or confirmatory factor analysis. This is especially prominent in the sport psychology literature, with a recent trend to conduct CFA on all measures used for every sample as routine in data analysis. Several major issues arise with this, such as sample size, target populations and

context of the results. The most worthy caveat though is the use of the cutoff values proposed by Hu and Bentler. Employing the frequently used, maximum likelihood (ML) estimator, Hu and Bentler propose a cutoff value close to .95 for incremental fit indices (e.g., Comparative Fit Index, Tucker-Lewis Index, and Incremental Fit Index), .08 for Standardised Root Mean square Residual, and .06 for Root Mean Square Error of Approximation. While appropriate for the hypothetical models used in Hu and Bentler's study however, these should not necessarily be used as a cutoff in more complex, particularly aggregated models. Here, several problems arising from the use of these cutoff values are identified.

Hu and Bentler (1999) proposed cutoff criteria for all commonly cited fit indices by examining rejection rates on hypothetical models. These proposed criteria are referred to as a matter of routine in studies using any kind of structural equation methods. While reference to Hu and Bentler's suggested cutoffs is not necessarily an issue itself, the extent to which many researchers view these recommendations as golden rules potentially creates a substantial amount of type one errors. Marsh et al. (2004) keenly and accurately point out that Hu and Bentler offered caution about using such cutoff values and concisely explain the dangers of overgeneralising the findings from Hu and Bentler in search of golden rules. Indeed, Marsh et al. refer to a traditional cutoff values amounting to "little more than rules of thumb based largely on intuition and have little theoretical justification" (p. 321). The issue with treating Hu and Bentler's cutoff values as golden rules was demonstrated by Perry, Nicholls, Crust, and Clough (2015), who collated data from psychometric scales commonly used in sport and exercise psychology. Perry et al. found that all measures, despite previously demonstrating validity elsewhere, fell below the cutoff values proposed by Hu and Bentler. It is surprising therefore that such cutoff values are blindly accepted so regularly in sport and exercise psychology without even acknowledgement of their limitations.

The use of CFA techniques for examining factorial validity and identifying acceptable levels of fit is certainly not straightforward. Hopwood and Donnellan (2010) illustrated the difficulty very effectively by examining eight common personality measurements. By conducting CFAs, the authors found that none of the scales used came close to Hu and Bentler's recommended cutoff values. Interestingly, even the best performing measure achieved a model fit well below the commonly accepted criteria, despite commonly being accepted as an appropriate assessment of personality. The length and complexity of personality measures means that employing the same requirements of such models compared to short, simple models is simply not appropriate. A CFA model typically constrains items to loading on only one factor, resulting in misspecification for each cross-loading. Long, complex measures therefore, have much less chance of achieving an acceptable fit. In providing their own caveat for using CFA, Hopwood and Donnellan describe what they call *The Henny Penny Problem* after the character from the children's tale who lamented that the sky was falling after an acorn fell on his head. The authors point out that claims that a measure is invalid because of a weak CFA fit is exaggerated and ignores other types of validity such as content and criterion-related validity. Such personality assessments could perhaps perform better in a CFA by reducing their size and/or complexity, but if this is at cost of predictive or other forms of validity, it is simply not a virtuous academic pursuit.

### 3.6.1. Fit Indices

The use of a global fit index in structural models is a potentially controversial one. Many exist and several are typically reported. Deriving from chi-square, there are several types of model fit, as identified by Tanaka (1993) and Maruyama (1998). Fit indices can be absolute or incremental.

In contrast to typical statistical analysis, a non-significant result in chi-square ($\chi^2$) indicates a positive result. That is, a *p* value of greater than .05 indicates a satisfactory fit. As

such, the researcher would normally seek to accept the null hypothesis when examining chi-square as a fit index. The null hypothesis is effectively stating that the postulated model fits the data sample. $\chi^2$ is calculated as:

$$\chi^{2=}\sum_{i=1}^{n} \frac{(O_i - E_i)^2}{E_i}$$

where

$\chi^2$ = chi-square
$O_i$ = observed frequency
$E_i$ = Expected (implied) frequency
$n$ = sample size

However, the chi-square statistic alone is potentially a very misleading value because it is affected by model complexity, sample size and multivariate kurtosis. Large sample sizes increased chi-square, leading to a significant *p* value, which is not representative of the true model adequacy. Indeed, with sample sizes often recommended for conducting structural equation modelling, the $\chi^2$ statistic is almost always significant because sample size is a multiplier of the discrepancy between observed test statistics and their intended value (Barrett, 2007). Consequently, chi-square is supplemented with a range of fit indices to provide a more suitable statistic. One approach is to divide $\chi^2$ by the degrees of freedom (*df*), with a ratio of 2 or greater representing inadequate model fit (Byrne, 1989). While this is often reported, it can easily become a redundant or misleading statistic when a model is overparameterised. While $\chi^2$ and *df* are always reported however, it is typically other fit indices that are used to make inferences about model adequacy.

#### 3.6.1.1. Absolute Fit Indices

In general, absolute fit indices are simple variations of the chi-square statistic, as they are produced by the maximum likelihood estimation of obtained and implied covariance matrices. Other than $\chi^2$, the goodness of fit index (GFI or gamma-hat), adjusted goodness of fit index (AGFI), standardised root mean square residual (SRMR), Akaike's information

criterion (AIC), Bayesian information criterion (BIC), Hoelter's critical N (CN), and McDonald's centrality index (Mc or MCI) can be reported to interpret model fit. Of these, the most commonly reported are RMSEA and SRMR. The key difference between these is that the RMSEA is a noncentrality-based statistic, meaning that it adjusts for model complexity, while the SRMR does not. This adjustment however, is based on the $\chi^2$ to *df* ratio, which can be problematic. As absolute measures, all of these are susceptible to sample size and model complexity issues.

#### 3.6.1.2. Incremental Fit Indices

An incremental fit index is sometimes referred to as a relative fit index, as it assesses the proportionate improvement in fit from a baseline (independence) model, in which all variables are uncorrelated to the target (alternative) model. Some incremental indices are normed, to ensure that values will always range between zero and one. These include the normed fit index (NFI) and the comparative fit index (CFI), while others are non-normed and theoretically, could generate values greater than one or less than zero, such as the Tucker-Lewis index (TLI, sometimes called non-normed fit index, NNFI) and Bollen's fit index (BL89, sometimes called the incremental fit index; IFI). Of these, the most commonly reported are CFI and TLI. Both of these pay a penalty for complexity, by reducing the model fit for each parameter estimated. However, the penalty is much greater for TLI. Accordingly, high statistics for TLI in particular are very difficult to obtain in complex models. Moreover, TLI and CFI are dependent on the average size of correlations in the matrix. Therefore, a more complex model reduces the average correlation size, which effectively means that the baseline model of complete independence is less bad than it is in a simpler model. Consequently, the proportionate improvement in model fit of the target model becomes less and both CFI and TLI are reduced. One way of assessing this is to examine the RMSEA of the baseline model, as value less than .158 will reduce the accuracy of incremental measures

(Kenny, 2012). Because of these reasons, simply accounting for the degrees of freedom is not sufficient to compensate for model complexity.

### 3.6.2. Model Complexity

A further issue with cutoff values is that a seemingly adequate model fit may not necessarily be derived from a correctly specified model, but from the extent to which the model is overparameterised. A model can become more complex by including more observed variables, more latent variables, or by including a higher order. The inclusion of more variables often increase the degrees of freedom, which increases the amount of non-significant cross-loadings and therefore penalises the more complex model in terms of fit indices. However, a model could also become more complex by increasing the constrained parameters, which significantly decreases the degrees of freedom. This will normally have a significant positive effect on model fit. In this second scenario however, the improved model fit is generated by an overparameterised model, enabling it to account for more variance and therefore more fit, rather than a true reflection on how well the specified model fits the data. Consequently, it is possible to present good model fit even if is little match between the model and the population covariance matrix.

It is interesting to note that the hypothetical models used in Hu and Bentler's (1999) study that determined the frequently employed cutoff values. Hu and Bentler produced two models for their method, which they refer to as "simple" and "complex". Both were confirmatory factor analytic models based on 15 observed variables with three common factors. While the simple model Hu and Bentler describe indeed would be a simple model, the "complex" one is considerably less complex than most psychological measures. For both models, the variance of factors was set at 1.0 and the covariance was 0.30 (between factors 2 and 3), 0.40 (between factors 1 and 3) and 0.50 (between factors 1 and 2). Factor loadings in

both models were all significant (≥.70). For the simple model (Figure 2.2), all cross loadings were set at .00.

$$\begin{bmatrix} .70 & .70 & .75 & .80 & .80 & .00 & .00 & .00 & .00 & .00 & .00 & .00 & .00 & .00 & .00 \\ .00 & .00 & .00 & .00 & .00 & .70 & .70 & .75 & .80 & .80 & .00 & .00 & .00 & .00 & .00 \\ .00 & .00 & .00 & .00 & .00 & .00 & .00 & .00 & .00 & .00 & .70 & .70 & .75 & .80 & .80 \end{bmatrix}$$

**Figure 3.2.**
**Simple hypothetical model used by Hu and Bentler (1999)**

Described as a confirmatory factor analytic model, each cross-loading is constrained to zero. This is typical in CFA but is not representative of how data from most psychological scales fits. In reality, it is unlikely that any cross-loadings equal zero. When developing models using EFA, it is common practice to ignore non-significant cross-loadings of < .30. However, even in an excellent model fit to a dataset, most of the factor loadings represented by a zero in Figure 3.2 are likely to be between .05 and .30. If the model has constrained these to zero, each of these non-significant cross-loadings are considered as misspecifications and will weaken model fit. Hu and Bentler's (1999) "complex" model was intended to allow for an element of cross-loading. The factor loading matrix for this model is illustrated in Figure 3.3.

$$\begin{bmatrix} .70 & .70 & .75 & .80 & .80 & .00 & .00 & .00 & .00 & .00 & .00 & .00 & .00 & .00 & .00 \\ .00 & .00 & .00 & .70 & .00 & .70 & .70 & .75 & .80 & .80 & .00 & .00 & .00 & .00 & .00 \\ .70 & .00 & .00 & .00 & .00 & .00 & .00 & .00 & .70 & .00 & .70 & .70 & .75 & .80 & .80 \end{bmatrix}$$

**Figure 3.3.**
**Complex hypothetical model used by Hu and Bentler (1999)**

A brief inspection of the complex model used by Hu and Bentler (1999) demonstrates a clear discrepancy between this hypothetical "complex" model and a genuinely complex model. Only variables one, four and nine exhibit a cross-loading and again, all other factor loadings are constrained to zero. Hu and Bentler then ran two hundred replications (simulated samples) on each model for a range of sample sizes, calculating the rejection rate of models for a variety of cutoff values for each fit index. A consideration missing from this analysis is that many psychological measures are aggregated to form an overall score. Consequently,

constraining all cross-loadings to zero is problematic because if these items really were so independent of one another, it would be impossible to generate a reliable overall score. Moreover, with such variability in model types found in the literature, one is left questioning the logic in defining cutoff values at all. Indeed, if attention is turned back to the earlier section on the logic of structural equation modelling, it is clear that all fit indices are statements of the degree to which a model fits a data set; they are not tests of a null hypothesis. It is simply not rational therefore to treat fit indices as a dichotomous answer of acceptable versus not acceptable fit.

### 3.6.3. Modification Indices

When encountering misspecifications in a CFA model, the researcher has several options. They can either (a) determine that the misspecification is irrelevant and proceed, (b) concede that the misspecification is significantly relevant and therefore reject the model, or (c) modify the model to achieve an acceptable fit. Such modification can be achieved using the modification indices provided in CFA output. The modification indices (MI) provide an estimated decrease in the chi-square for each fixed parameter if it were to be freed. In independent cluster models (ICM; Marsh et al., 2009), covariances between error terms in items from questionnaires are typically fixed to zero. By identifying significant modification indices and allowing them to be estimated, chi-square will be decreased, thus yielding a better statistical model fit. The use of MI to respecify poorly fitting models was effectively demonstrated by MacCullum (1986) and further recommended by Saris, den Ronden, and Satorra (1987) and Saris et al. (2009). It should be noted however, that all of these authors also urge caution because this data driven approach does not necessarily hold any theoretical relevance. Indeed, MacCullum found that in half of the models tested in a simulation study, MI did not find a true model. Several authors (e.g., Brown, 2006; Kaplan, 2009; Kline, 2005) have referred to such respecification as atheoretical, claiming that it is merely capitalising on

chance within a sample. Perry et al. (2015) examined the extent to which models could be respecified on samples for eight psychometric scales. By testing measurement invariance on random half subsamples, the authors recommended caution with this approach, as some respecifications appeared sample-specific. The process of using MI is seldom reported and therefore presumably, seldom conducted in sport and exercise psychology.

## 3.7. Exploratory Structural Equation Modelling

Exploratory Structural Equation Modelling (ESEM) provides an alternative to CFA, which is effectively an integration of EFA and CFA methods, which could be considered as a EFA-SEM approach (Asparouhov & Muthén, 2009). CFA assesses an a priori model that typically allows observed variables to load only onto their intended factor. Typically, all loadings, regardless of their significance, onto other latent variables are constrained to zero (Figure 3.4). In Figure 3.4, *y* represents the latent variables, which are typically subscales in self-report psychology measures, while *x* represents each observed variable, typically an item within a questionnaire, and *e* represents the residual error. This is a typical CFA model, often referred to as an ICM (Marsh et al., 2009). This means that all non-significant cross-loadings will contribute to model misspecification (Ashton & Lee, 2007). This misspecification is defined by Hu and Bentler (1998, p. 427) as when "one or more parameters are fixed to zero were population values are non-zeros (i.e., an underparameterised misspecified model)". Clearly in many psychometric measures, particularly long, multidimensional scales, this can become a substantial issue. Moreover, questionnaires that are aggregated to enable an overall score to be derived as well as individual subscale scores to include appropriate internal consistency must have moderate to high inter-correlations and therefore, many non-zero cross-loadings. Church and Burke (1994) explained that ICMs are too restrictive for research where secondary or cross-loadings are likely, such as personality research. It is this reason why Hopwood and Donnellan (2010), and others before them, found such difficulty in

obtaining a satisfactory CFA fit on personality scales. ESEM provides standard errors for all rotated parameters. As such, it allows all observed variables to load on all latent variables (Figure 3.5). This overcomes the issue of secondary, often non-significant cross-loadings causing irrelevant model misspecification, and therefore, the potential rejection of a good model. This was expertly demonstrated by Marsh et al. (2010), who assessed the 60-item NEO Five-Factor Inventory using CFA and ESEM methods. The authors found that ESEM noticeably outperformed CFA in goodness of fit and construct validity. This was replicated in eight different scales by Perry et al. (2015).

By freeing more parameters to be estimated, ESEM will inevitably result in a better model fit. As such, it is important to be cautious when interpreting model fit. Essentially, a good model fit could be obtained by items loading onto theoretically unrelated factors. As such, it is important to examine the factor loadings carefully. Specifically, researchers should examine the extent to which (a) items have not loaded onto their intended variable (i.e., factor loading < .20) and (b) have substantively loaded (i.e., factor loading > .30) onto other variables. It is only on obtaining a good model fit and theoretically sound factor loadings that it can be claimed that factorial validity was supported by ESEM.

## 3.8. Proposed Method for Scale Development and Validation

After consideration of the points made in this chapter, and drawing on good practice from previous research, it is sensible to present a proposed plan for the development and validation of psychometric scales. This plan, presented as Figure 2.6, will be used in the rest of this thesis.

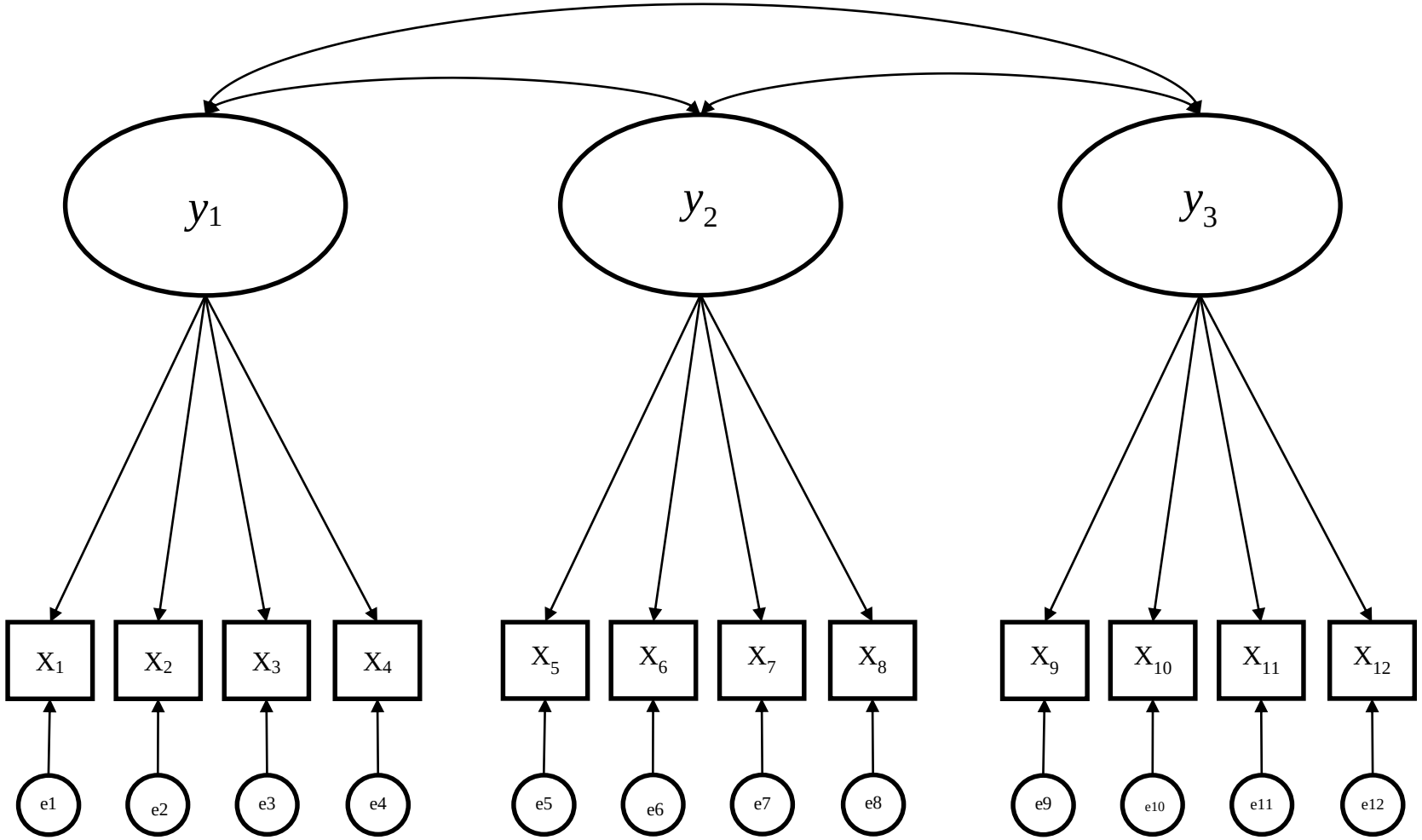



**Figure 3.4.**
**An illustration of model structure with estimated parameters in confirmatory factor analysis**

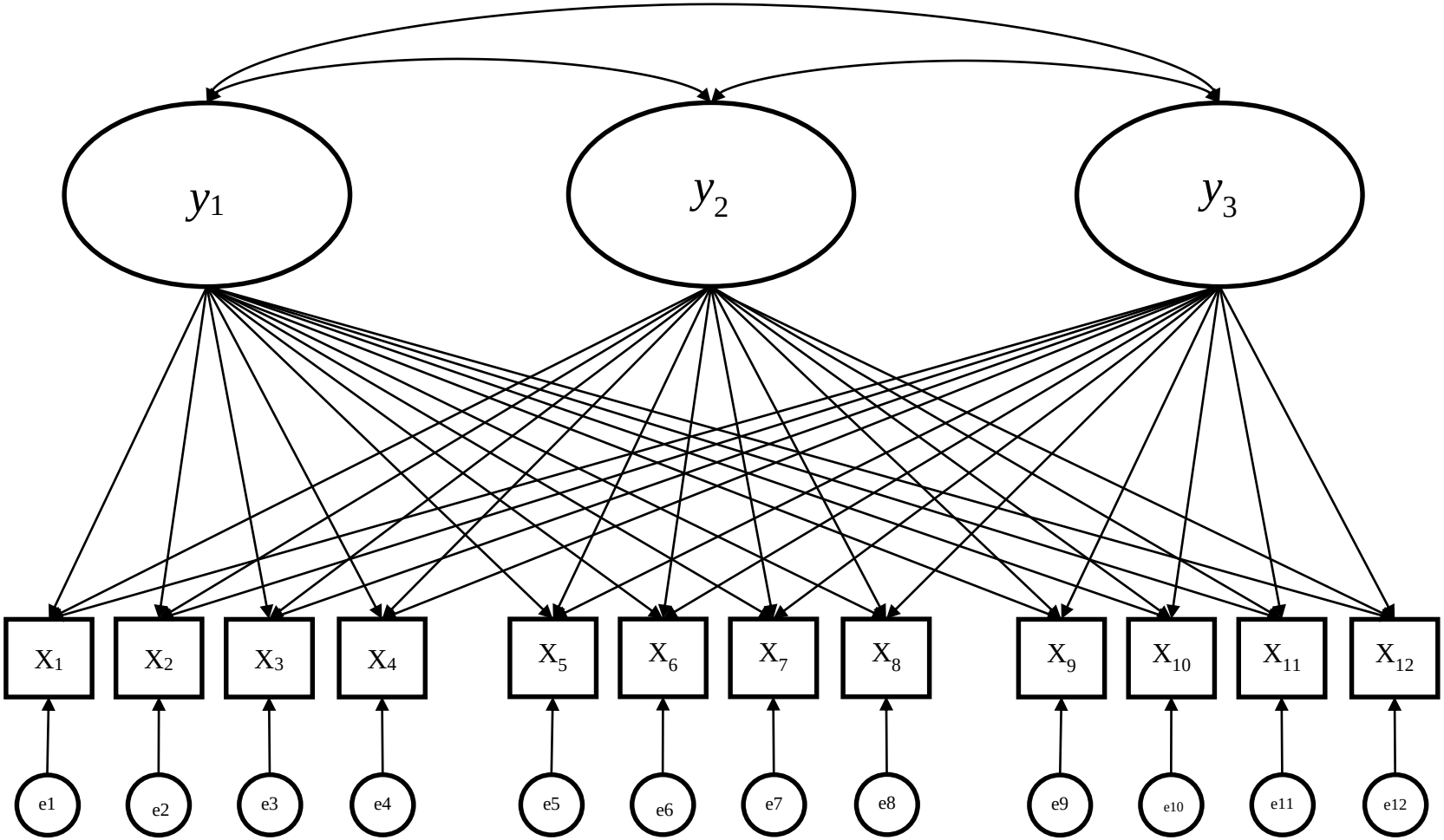



**Figure 3.5.**
**An illustration of model structure with estimated parameters in exploratory structural equation modelling**

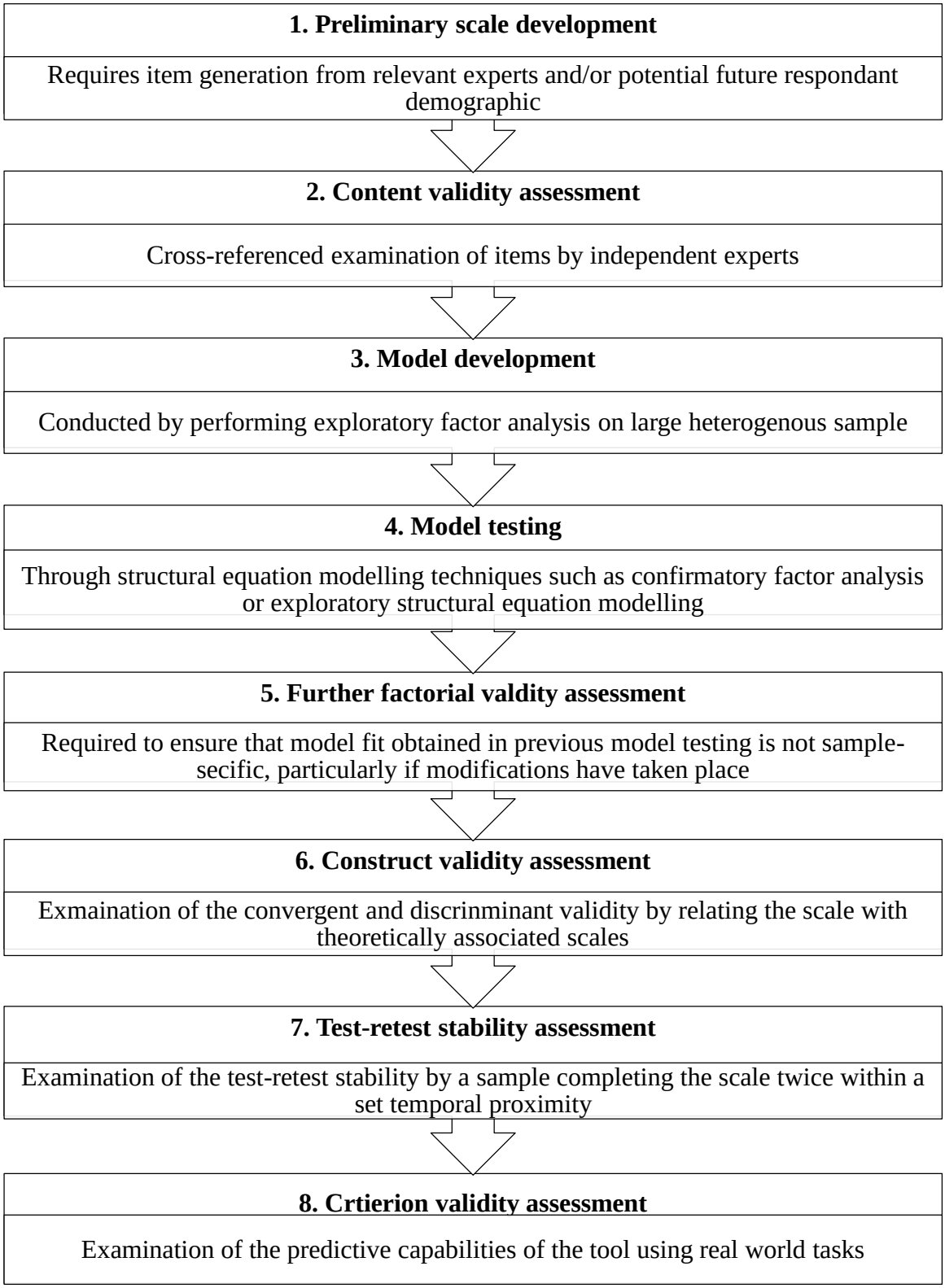



**Figure 3.6.**
**A representation of the proposed methods for the development and validation of a psychometric scale**

## 3.9. Methods for Thesis

With points from this chapter considered, the subsequent three chapters develop a new psychometric measure of sportspersonship and test the new scale. Specifically, chapter four examines the factorial validity of the multidimensional sportspersonship orientations scale (MSOS; Vallerand et al., 1997) using CFA and ESEM to establish which aspects should inform the new model (Study 1). Next, a new model for sportspersonship is developed by firstly using experts to develop items and cross-validate items to encourage content validity. A large heterogeneous sample is then used for exploratory factor analysis to establish a model (Study 2).

In chapter five, a second large, independent sample is used to test the theoretical model using confirmatory factor analysis and exploratory structural equation modelling, with a subjective interpretation of fit indices. Confirmation of the model after some refinement supports the factorial validity of the new measure (Study 3). This also includes a test of measurement invariance using multigroup SEM. The model is then refined again when tested on an independent sample using confirmatory factor analysis and exploratory structural equation modelling. Construct validity of the new measure is assessed by correlating subscales to task goal orientation, to which sportspersonship is theoretically associated, and self-reported prosocial and antisocial behaviour. Expected correlations and regression paths support the construct validity of the new measure (Study 4). A mediation analysis is conducted at this point to examine the theoretical relationships between achievement goal orientation and sportspersonship on moral behaviour. Throughout all of these studies, reliability is assessed using a range of indicators, including Cronbach's alpha, composite reliability, average variance explained, and inter-item correlations. Study 5 examines then relationships of sportspersonship with mental toughness and personality. This study required self-report questionnaires for data collection, which were assessed using bivariate

correlations and multiple regression and further tests the construct validity of the new measure.

In chapter six, the test-retest stability of the new scale is measured (Study 6) by conducting a retest after seven days. This is examined at item level, again using a range of stability indicators. Criterion validity is then examined in two experimental studies. Specifically, these studies examine the predictive ability of the measure on behaviour. The first study (Study 7) is the well-known prisoner's dilemma game originally introduced by Flood and Dresher (1952). To establish criterion validity, scores from the scale are correlated with decisions made by participants to cooperate with an opponent or defect. This is undertaken in two conditions; a competitive condition, where rewards are distributed based on a league table, and an accumulative condition, where rewards are distributed based on total points gained. The second experimental study (Study 8) determines participant's honesty while performing an unsupervised task at a computer. As in Study 7, observed behaviour is correlated to sportspersonship. All methods are described fully in all of the studies.

# Chapter 4: Development of the Compliant and Principled Sportspersonship Scale

## 4.1. Summary

The first two chapters of this thesis identified the most prominent existing model and measure of sportspersonship is the multidimensional sportspersonship orientations scale (MSOS) presented by Vallerand et al. (1996, 1997). As it is the most conceptually valid measure of sportspersonship, it is appropriate to examine the validity of this scale before developing a superseding model. Study 1 reported in the first part of this chapter tests the psychometric properties of the MSOS.

This chapter then describes the development of a new model and measure of sportspersonship. Specifically, the new model includes a principled domain, which is added to domains more compliant in nature, which are similar to some previous research on sportspersonship and the legitimisation of injurious acts. The new measure is entitled the Compliant and Principled Sportspersonship Scale (CAPSS). This model was developed and initially validated in a series of studies. Specifically, a 71-item questionnaire was developed and administered to 357 sports participants before exploratory factor analysis (EFA) reduced the questionnaire to a 6-factor, 33-item scale.

## 4.2. Introduction

The MSOS is the only real multidimensional model and measure of sportspersonship. Although it has been heavily criticised by some (e.g., McCutcheon, 1999), it is the most conceptually valid approach to studying sportspersonship at present. For further understanding in the area, it is necessary to examine closely which aspects of the MSOS are valid and appropriate dimensions of sportspersonship. After this is complete, it is then possible to develop a superseding model and measure that will ensure progression in our current ability to assess and develop sportspersonship. Consequently, the purpose of this chapter was to firstly examine the validity of the MSOS and secondly, to chart the development of a new, superseding model.

## 4.3. Study 1: Examining the Factorial Validity of the Multidimensional Sportspersonship Orientations Scale

Vallerand et al. (1996) first set out to establish a multidimensional definition of sportspersonship and develop a scale. This scale was then further developed and tested in Vallerand et al.'s (1997) study, which presents the MSOS. As identified in chapter 2, there are conceptual and psychometric criticisms of the measure. However, there are also significant strengths to the model. It is likely that the strengths of this model will be explored further in one that supersedes it. Therefore, it is sensible to consider the MSOS in greater depth. In this study, the methods and results of the Vallerand et al. (1996, 1997) studies are discussed before the factorial validity of the MSOS is examined. Finally, results of confirmatory factor analysis; exploratory structural equation modelling and reliability analyses are presented and discussed.

Using a pilot study of 60 participants (Mean age = 18.3), Vallerand et al. (1996) gained a variety of definitions of sportsmanship. From these, the authors devised an initial 21-item scale requesting participants to identify the extent to which they agreed with each statement on a Likert scale anchored by 1 = *not at all related to the notion of sportsmanship* to 4 = *greatly related to the notion of sportsmanship*. This 21-item scale was then completed by 1056 French-Canadian sports performers (male = 563, female = 492) aged 10-18 ($M$ = 14.8), representing seven different sports. Exploratory factor analysis yielded a 5-factor solution explaining 50% of the variance. This provided a clear structure, presenting the five factors proposed by Vallerand et al. respect and concern for one's full commitment toward sport participation, negative approach toward sport participation, respect and concern for the rules and officials, respect and concern for social conventions, and respect and concern for the opponent. As acknowledged by the authors however, the internal consistency of some subscales was lower than the generally accepted level of .70 (Kline, 1999; Nunnally &

Bernstein, 1994) (negative approach toward sport participation α = .59; respect and concern for the opponent α = .59; respect and concern for social conventions α = .66). Overall however, Vallerand et al. proposed this 5-factor multidimensional definition and proceeded to further develop the MSOS.

Vallerand et al. (1997) developed further items following their 1996 study. They presented 20 items for each of the five factors to two independent researchers who placed each item into the relevant factor. In doing so, total items were reduced to 65. The authors claim that this process ensures content validity. Interestingly, Vallerand et al. decided to focus on behavioural elements of sportspersonship, claiming that this better facilitated the prediction of behaviour. While this appears logical, it also neglects the plethora of morality research on moral reasoning. Further, it reduces the ability of sportspersonship as a concept to explain morality in sport. An element of reasoning, attitude, or perspective may have been of benefit here.

The 65-item MSOS was completed by 15, 12-16 year-old athletes to enable the reformulation of unclear items and then completed by a further 132 athletes of a similar age. For each subscale, the best five loading items per factor were retained following principal component analysis. The authors offer no justification for using this ahead of EFA. This resulted in a 25-item version of the MSOS, which was completed by a final sample of 362 athletes (males = 211; females = 151; mean age = 14.4). Confirmatory factor analysis largely supported the factorial validity (CFI = .90, BBNNFI = .89). However, this is borderline or below the recommendations of some researchers (e.g., Hu & Bentler, 1999). Vallerand et al. (1997) do not present a variety of fit indices, such as relative fit (e.g., TLI), non-centrality-based (e.g., RMSEA), or any absolute model fit index (e.g., SRMR). It is likely that the model fit was significantly reduced by two items from the negative approach subscale that loaded poorly (.26 and .35). Further, the internal consistency for this scale was low (α = .54).

Internal consistency was said to be supported on other subscales by Cronbach's alpha coefficient.

To assess construct validity, Vallerand et al. (1997) correlated participant responses with responses on behavioural intentions. Said differently, the extent to which athletes intend to carry out the sportspersonship behaviour for specified scenarios. This exercise provided only partial support for the MSOS, as the respect for rules and officials dimension correlated greater on scenarios intended for two other factors than its own. Further, the correlation between negative approach and its intended scenario was significant, but low ($r$ = .16, $p$ < .05). Finally, Vallerand et al. assessed the temporal stability of the MSOS by correlating results from the same participants twice within a five-week period. All correlations in this instance support the test-retest reliability of the scale ($r$ = .56 - .76). This is not particularly high for subscale-level analysis. Moreover, item-level analysis should be conducted and use a variety of assessments other than correlations, including intraclass correlations, kappa estimates, paired-samples t-tests, and the proportion of participants grading an item within (±1) (Lane et al., 2005; Nevill et al., 2001).

The MSOS has certainly demonstrated that it has potential. To be more confident in its use however, examinations of its psychometric properties in an independent sample from older participants in a different country is appropriate. The purpose of this study was to analyse the factorial validity of the MSOS on a UK sample using a heterogeneous, adult sample.

### 4.3.1. Methods

#### 4.3.1.1. Participants

Participants ($n$ = 323, male = 209, female = 113, unspecified = 1) aged 16-54 ($M$ = 21.55, $SD$ = 6.24) representing a host of individual ($n$ = 61) and team ($n$ = 249; unspecified $n$ = 13) sports completed the MSOS. Participants represented a range of skill levels from

recreational (*n* = 139), club (*n* = 145), semi-professional (*n* = 45), and professional (*n* = 4) (unspecified *n* = 11).

#### 4.3.1.2. Measures

***Multidimensional Sportspersonship Orientations Scale.*** The MSOS (Vallerand et al., 1997) was used to measure sportspersonship orientations. Participants were required to respond on a 5-point Likert scale anchored by 1 = *Doesn't correspond to me at all* to 5 = *Corresponds to me exactly*.

#### 4.3.1.3. Procedure

Participants completed the MSOS in person either at a training session or within a university. Ethical approval was gained from a university departmental ethics committee. A total 348 questionnaires were distributed to gain 323 responses representing a response rate of 92.82%. The MSOS took approximately 5-10 minutes to complete.

#### 4.3.1.4. Data Analysis

Data was preliminary screened for missing responses, normality and outliers in SPSS, Version 20 (SPSS Inc.). Model fit was then assessed using confirmatory factor analysis (CFA) and exploratory structural equation modelling (ESEM) in Mplus 7.0 (Muthén & Muthén, 2012) employing the robust maximum likelihood estimator (MLR). The default geomin rotation was selected with an epsilon value of .5. The indices used to test model fit were chi-square ($\chi^2$), comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error or approximation (RMSEA), and standardized root mean square residual (SRMR). Standardised parameter estimates were then examined. Factor loadings for CFA were interpreted using Comrey and Lee's (1992) recommendations (i.e., >.71 = excellent, >.63 = very good, > .55 = good, >.45 = fair and >.32 = poor). Latent factor correlations were examined and internal consistency using Cronbach's α, with a scores of approximately .70 and greater considered acceptable due to the diversity in the score (Kline, 1999; Nunnally &

Bernstein, 2004). To present a more thorough indication of reliability, CR and AVE were also conducted for each subscale.

### 4.3.2. Results

#### 4.3.2.1. Preliminary Analyses

Data was initially screened for missing values, outliers and normality. Missing values were negligible (< 0.1%) and outliers, found by examination of Q-Q plots, were corrected by revisiting original questionnaires. Univariate normality was confirmed by assessing statistics for skewness (< 2) and kurtosis (< 2). However, multivariate kurtosis was above the acceptable level (Mardia's coefficient = 106.2, normalized estimate = 26.0). Therefore, the robust maximum likelihood estimator was used (MLR). Internal consistency was assessed using Cronbach's alpha (α) and composite reliability (CR), with four of the five subscales providing adequate reliability values (full commitment, α = .74, CR = .74); social conventions, α = .80, CR = .81; rules and officials, α = .81, CR = 82; opponent, α = .76, CR = .77). The negative approach subscale consistency was weak (α = .49, CR = .51), which is consistent with the value presented by Vallerand et al. (1997) of α = .54. Fornell and Larcker (1981) recommend considering the average variance extracted, which was at the lower threshold of acceptability for the social conventions (AVE = .47), opponent (AVE = .40), and rules and officials (AVE = .48) subscales. The full commitment subscale (AVE = .37) and negative approach subscale (AVE = .22) extracted little less variance on average.

#### 4.3.2.2. Factorial Validity

Model fit was initially assessed using confirmatory factor analysis, presenting a reasonable model fit: $\chi^2(265) = 447.9$, $p < .001$, CFI = .902, TLI = .889, SRMR = .063, RMSEA = .046 (90% CI = .039-.053). Fit appeared to be impaired by one weak loading on the negative approach factor, as demonstrated in Table 4.1. The removal of this item improved fit: $\chi^2(242) = 395.1$, $p < .001$, CFI = .916, TLI = .904, SRMR = .057, RMSEA =

.044 (90% CI = .036-.052). As the negative approach subscale presented low internal consistency, this subscale was next removed altogether to create a 4-factor, 20-item model. This again improved CFA model fit: $\chi^2(164) = 268.3$, $p < .001$, CFI = .935, TLI = .925, SRMR = .049, RMSEA = .044 (90% CI = .035-.054).

ESEM was conducted on both the original 25-item model and the 20-item model. Model fit was good for the 25-item version: $\chi^2(185) = 292.3$, $p < .001$, CFI = .942, TLI = .907, SRMR = .032, RMSEA = .042 (90% CI = .033-.051). This was slightly improved in the 20-item model: $\chi^2(116) = 197.5$, $p < .001$, CFI = .949, TLI = .917, SRMR = .031, RMSEA = .047 (90% CI = .035-.058). The standardised parameter loadings for the 25-item version under CFA and ESEM analyses are presented in Table 4.1.

Latent factor correlations, presented in Table 4.2, between all factors except negative approach were significant in CFA ($r$ = .18-.63). Correlations between negative approach and rules and officials ($r$ = .25) and full commitment ($r$ = .38) were positive but there was no significant relationship between this factor and social conventions or opponent. Interestingly, ESEM demonstrated a significant negative relationship between negative approach and rules and officials. Theoretically, negative approach should correlate negatively with all other factors, as a high score demonstrates low sportspersonship, whereas a high score represents high sportspersonship in all other factors. Excluding this factor, the weakest correlation is between full commitment and opponent, which was significant in CFA ($r$ = .18, $p < .05$) but not in ESEM ($r$ =.09, $p$ = *ns*).

**Table 4.1.**
**MSOS standardised parameter estimates for CFA and ESEM**

| Item | Factor 1 (Social Conventions) | | Factor 2 (Rules and Officials) | | Factor 3 (Full Commitment) | | Factor 4 (Opponent) | | Factor 5 (Negative Approach) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CFA | ESEM | CFA | ESEM | CFA | ESEM | CFA | ESEM | CFA | ESEM | CFA ($R^2$) | ESEM ($R^2$) |
| Q1 | .73** | **.64**** | | .12 | | .02 | | .05 | | -.06 | .54** | .56** |
| Q6 | .57** | **.49**** | | -.05 | | .02 | | .24* | | .01 | .32** | .36** |
| Q11 | .82** | **.62**** | | .03 | | .14* | | .22* | | .01 | .67** | .62** |
| Q16 | .66** | **.49**** | | .00 | | .11 | | .27* | | .17* | .43** | .47** |
| Q21 | .62** | **.76**** | | .01 | | -.07 | | -.10 | | -.18* | .39** | .58** |
| Q2 | | -.15* | .71** | **.75**** | | .06 | | .04 | | -.05 | .50** | .54** |
| Q7 | | -.02 | .75** | **.74**** | | .03 | | -.02 | | -.12* | .55** | .57** |
| Q12 | | .03 | .69** | **.68**** | | .01 | | .00 | | .00 | .48** | .48** |
| Q17 | | .10 | .66** | **.62**** | | -.09 | | .05 | | .05 | .43** | .45** |
| Q22 | | .08 | .68** | **.65**** | | .01 | | .00 | | .09 | .47** | .48** |
| Q3 | | .12 | | .00 | .60** | **.60**** | | -.10 | | .04 | .36** | .39** |
| Q8 | | -.04 | | .00 | .58** | **.56**** | | -.03 | | -.17* | .34** | .37** |
| Q13 | | .02 | | -.05 | .58** | **.55**** | | .12 | | -.12 | .34** | .36** |
| Q18 | | .05 | | .06 | .61** | **.55**** | | .04 | | -.06 | .38** | .38** |
| Q23 | | -.02 | | .09 | .63** | **.60**** | | .03 | | .03 | .40** | .39** |
| Q4 | | .10 | | .01 | | -.11 | .64** | **.61**** | | -.07 | .41** | .41** |
| Q9 | | -.03 | | .00 | | -.01 | .57** | **.61**** | | .07 | .33** | .37** |
| Q14 | | .15 | | .01 | | -.02 | .70** | **.62**** | | -.01 | .49** | .47** |
| Q19 | | -.05 | | .10 | | .03 | .68** | **.66**** | | .00 | .46** | .49** |
| Q24 | | .07 | | .18* | | -.03 | .56** | **.43**** | | .02 | .32** | .32** |
| Q5 | | .10 | | .04 | | .27** | | -.04 | .10 | **.27**** | .01 | .13** |
| Q10 | | -.04 | | -.03 | | .06 | | -.05 | .54** | **.59**** | .29** | .35** |
| Q15 | | -.07 | | -.06 | | -.07 | | .05 | .55** | **.50**** | .31** | .31** |
| Q20 | | -.03 | | -.02 | | -.07 | | .03 | .73** | **.63**** | .53** | .43** |
| Q25 | | .04 | | .19* | | -.11 | | -.22** | .27** | **.34**** | .07* | .16** |

*Note*. CFA = confirmatory factor analysis, ESEM = exploratory structural equation modelling. *Statistically significant parameter estimates at $p < .05$, **$p < .01$.

### 4.3.3. Discussion

The purpose of this study was to assess the factorial validity of the MSOS (Vallerand et al., 1997) with the intention of identifying which aspects of the scale should inform the development of a new scale. The MSOS clearly has merit, which is demonstrated by the achievement of a good model fit after removing the negative approach subscale. One may indeed question the usefulness of defining a concept by describing what it is not. The low factor correlations between full commitment and some of the other factors also raises concerns over the inclusion of this factor. One would expect all components of sportspersonship to correlate with each other at least moderately.

**Table 4.2.**
**Descriptive statistics, latent factor correlations, and internal consistency of MSOS scales**

| Factor | Mean | SD | Skew | Kurt | F1 | F2 | F3 | F4 | F5 |
|---|---|---|---|---|---|---|---|---|---|
| Factor 1 (Social Conventions) | 3.80 | .82 | -.59 | .16 | (.81) | .48** | .40** | .31** | -.14* |
| Factor 2 (Rules and Officials) | 3.65 | .77 | -.32 | -.34 | .29** | (.82) | .36** | .28** | -.13 |
| Factor 3 (Full Commitment) | 4.12 | .63 | -.50 | -.13 | .18** | .14** | (.74) | .15* | .04 |
| Factor 4 (Opponent) | 2.86 | .88 | .03 | -.41 | .37** | .27** | .09** | (.77) | -.22** |
| Factor 5 (Negative Approach) | 3.40 | .64 | -.01 | .00 | -.02 | -.02 | -.03 | -.00 | (.51) |

*Note.* CFA factor correlations are shown below the diagonal, ESEM factor correlations are shown above the diagonal. Composite reliability estimates are shown in parentheses along the diagonal.
*Statistically significant correlation at $p < .05$, ** $p < .01$.

As discussed in the previous chapter, the MSOS also has conceptual issues. McCutcheon (1999) thoughtfully uses ex-tennis world number one John McEnroe as an example of why full-commitment is not a part of sportspersonship. McEnroe would have no doubt scored highly on this subscale but was often admonished for displaying poor sportspersonship during his time as a professional athlete. Ignoring the two questionable dimensions of Vallerand et al.'s (1996, 1997) definition, researchers are left with a sportspersonship concept inclusive of respect and concern for one's opponent, social conventions and rules and officials. To expand this, Treasure and Roberts (2001) suggested that rules and officials may be separate dimensions, as one could hold different attitudes and display different adherence towards rules and officials. For example, an athlete may respect officials and not argue with them but be prepared to regularly break or bend the rules. While aggression has been considered by some (e.g., Stornes & Bru, 2002) to be an element of sportspersonship, it is more of a related concept. However, increased levels of aggression may positively predict a performer's likelihood to legitimise the execution of a potentially

injurious act, which is a topic previously discussed by researchers (Bredemeier, 1985, 1994). While the MSOS provides a useful base for future developments, it does not enable researchers to distinguish between levels of moral reasoning, as previous morality literature from a structural-developmental perspective does.

The key strengths to the present study are the diversity of the sample compared to the original sample used by Vallerand et al. (1997). In particular, the sample are older, from a different country, and more heterogeneous, particularly in terms of sport. The primary limitation to the study is that it uses a relatively small sample size for the analysis. Bentler and Chou (1987) recommend five participants per free parameter in a model. In the original model, there were 85 free parameters to be estimated. Therefore the sample of 323 represents a ratio of just 3.8:1. Considering the positive model fit statistics obtained however, this does not appear to have caused a problem.

In summary, this study tested the factorial validity of the MSOS on a UK sample. Consistent with previous research, some elements of this scale were shown to be more stable than others. Considering the factorial validity and conceptual understanding of sportspersonship, it is recommended that the development of a new model is informed by attitudes and behaviours towards rules, officials, social conventions and opponent. A new model should also include a distinction between higher levels of moral reasoning to provide a holistic approach to moral reason and action.

The intention for the development of a new model is to build on the strengths of the MSOS but produce a more comprehensive and usable conceptualisation and measure of sportspersonship. The MSOS has some merit, and it was important to identify exactly where its merits lay and carry them forward to the new model. This study has identified just that, and as a result of the study, aspects of social convention and respect and concern for one's opponent will be taken forward. Further, the rules and officials dimension will be taken

forward but split to examine respect rules and officials as independent structures. Clearly, the negative approach should not form part of the new model, and there is a sensible logical argument for the removal of the full commitment dimension.

## 4.4. Study 2: Initial Scale Development

The aim of Study 2 was to develop a new model of sportspersonship, including compliant and principled approaches. This was achieved in two distinct stages. Firstly, sport psychologists and sports coaches were consulted to generate items pertaining to their knowledge of sportspersonship. Secondly, the initial scale was completed by a large sample and analysed using EFA to propose a new, 33-item, 6-factor model. Details of these stages are reported in the sections below.

### 4.4.1. Methods

#### 4.4.1.1. Preliminary scale development

In generating items, the primary focus is on content-related validity. Specifically, it is important that items capture the requirements of the domain but without extraneous content (Hinkin, 1995). In developing a new measure of sportspersonship, the aim was to adopt a holistic approach to moral reason and action. Most similar to this is Vallerand et al.'s (1996; 1997) sportspersonship orientations. However, the orientations proposed by Vallerand and colleagues were predominantly behavioural based. As such, items in the new model should refer to behaviours and general attitudes or perspectives.

When there is no accepted definition or conceptual framework, many researchers utilise qualitative methods to generate themes that represented general opinion on the topic. In sport psychology, many measures have derived from interviewing athletes. However, anecdotal evidence suggests that this is a difficult strategy for developing a sportspersonship concept that goes beyond behaviour. This is because when asked about sportspersonship (or typically, "sportsmanship"), athletes generally offer only behavioural examples such as

"throwing the ball back to an opponent if they kicked the ball out to enable another player to receive treatment from the physiotherapist". This is a very common example provided in football. Others include not injuring an opponent, shaking hands after a game and not swearing at officials. While these insights are useful, they have been included in previous scales such as the multidimensional sportspersonship orientations scale (Vallerand et al., 1996, 1997) and the prosocial and antisocial behaviour in sport scale (Kavussanu & Boardley, 2009). What such examples of positive sportspersonship behaviour do not offer, is insight into moral reasoning, attitude or perspective. In this area therefore, it is more appropriate to use considered experts to develop items rather than interviewing performers.

Initially psychologists ($n$ = 6) and sports coaches ($n$ = 6) were consulted to generate items they believed identified sporting attitudes, beliefs, and behaviours. All psychologists were registered within the United Kingdom and had experience of working with professional sports performers. Coaches were all head coach of their respective clubs, representing soccer, cricket, hockey, and netball, with at least 10 years' experience and qualified to at least a Level 3 UK coaching certificate. The psychologists and coaches were provided with an information sheet (Appendix A) indicating potential areas to consider, including dimensions from Vallerand et al.'s (1997) multidimensional sportspersonship orientation scale (MSOS) and they were asked to consider a distinction between compliant and principled approaches. The dimensions explained from the MSOS were respect towards officials, rules, opponent, and social convention, as the previous study identified these factors as the most robust and conceptually appropriate. This was to encourage those generating items but they were not restricted to any areas of what they considered to best represent sportspersonship. In total, 86 items were generated. The information sheet guided psychologists and coaches in these areas by presenting a brief description of the concept and some key terms. For example, the rules concept included key terms of "all rules", "obey", "cheat", and "break rules". The principled

domain was equally unspecific, encouraging a broad range of items including key terms such as “good of the game”, “win at all costs”, and “rather lose than…”

All items were worded positively. There exists in some circles a belief that doing so can create a response bias, whereby respondents gravitate towards a consistent value. However, there is no real evidence of this. Indeed, van Sonderen, Sanderman, and Coyne (2013) demonstrated on a sample of 700 participants that not only is this a myth, but that the existence of negatively worded items at times created confusion among participants. Moreover, Eys, Carron, Bray, and Brawley (2007) revised a group environment questionnaire from a mixture of positive and negative worded items to only include positively-worded items. The authors found that the revised questionnaire, not containing any negatively worded items, demonstrated significantly higher internal consistency. It is common in morality research to use absolute statements, such as “never” and “always”. This practice enables respondents to be very clear regarding their moral position, rather than more ambiguous terminology. As such, several of the items generated contained such statements.

To enhance content validity, each psychologist and coach rated items on a 4-point content validity index (CVI; Waltz & Bausell, 1983). The criteria used can be found in Table 4.3. Each panel member rated each item according to the criteria and CVI was calculated by summing the amount of responses for each item of 3 or 4. This was divided by the total items to be expressed as a fractional proportion. All items that had a CVI over 0.75 were retained. Consequently, 11 items were discarded based on low CVI for relevance, clarity, simplicity, and/or ambiguity. A further four items were discarded as they were too similar to other items and therefore deemed to be redundant. This process is detailed in appendix B. The consultation ended with the development of a 71-item questionnaire assessed on a 4-point Likert-type scale anchored at 1 = *strongly disagree* and 4 = *strongly agree*. A 4-point Likert-type scale was used because it eliminates the neutral option, which seems appropriate for

requesting a moral response. If eliminating the neutral there appears to be little difference between 4-point and 6-point scales but reliability issues can become exaggerated in a 6-point scale (Chang, 1994).

**Table 4.3.**
**Criteria for assessing content validity**

| |
|---|
| **1. Relevance** |
| 1 = not relevant |
| 2 = item needs some revision |
| 3 = clear but very minor revision |
| 4 = very relevant |
| **2. Clarity** |
| 1 = not clear |
| 2 = item needs some revision |
| 3 = clear but minor revision needed |
| 4 = very clear |
| **3. Simplicity** |
| 1 = not simple |
| 2 = item needs some revision |
| 3 = simple but minor revision needed |
| 4 = very simple |
| **4. Ambiguity** |
| 1 = doubtful |
| 2 = item needs some revision |
| 3 = no doubt but minor revision needed |
| 4 = meaning is clear |

#### 4.4.1.2. Participants

Three-hundred and fifty-seven participants (men = 236; women = 121) aged between 16 and 54 years (*M* age = 20.77 years, *SD* = 4.95) who played a variety sports including team (*n* = 263) and individual sports (*n* = 94) took part in this study. The diverse range of participant experience (*M* number of years = 10.50, *SD* = 5.07) and sport ensured heterogeneity within the sample. It was felt that this was important, as the measure is intended to be appropriate to a range of sports. Existing measures in the area are less able to achieve this because they are limited by the items. For example, the PABSS (Kavussanu and Boardley, 2009) is only appropriate to team sports. The MSOS (Vallerand et al, 1997) contains items relating to issues such as helping an opponent off the floor. In some sports,

putting an opponent on the floor is the primary aim. It is therefore not an applicable item. This sample completed a paper copy of the initial 71-item CAPSS (Appendix C).

#### 4.4.1.3. Procedure

Following clearance form a UK university ethics committee, participants were contacted directly. Training sessions for teams were attended and student sport performers were invited to volunteer for the study. All participants were informed that the questionnaire examined sportspersonship attitudes, beliefs and behaviours. Further, participants were assured that all responses were anonymous and informed that their honesty was vital. Completion of the 71-item CAPSS and informed consent form took approximately 15-20 minutes. In total, 400 questionnaires were distributed to gain a first sample of 357 participants, representing a response rate of 89.25%.

#### 4.4.1.4. Data Analysis

Preliminary analysis was conducted to screen for outliers, missing data and normality. Orthogonal and oblique rotations were conducted and Bartlett's test of sphericity used as an indicator of appropriate sample size for EFA. During EFA, items were systematically removed based on factor loadings until an acceptable model was supported. To determine reliability, item-level and factor-level correlations were examined, using interitem correlations, Cronbach's alpha, composite reliability and average variance explained. Effects for gender and sport type were examined in a MANOVA and effects for age and experience examined using correlational analyses. If results were consistent with previous research, this was deemed to further support the initial development of the model.

### 4.4.2. Results

Data from the first sample of the 71-item CAPSS was collated and screened for outliers, before being subjected to exploratory factor analysis with varimax and direct oblimin rotations. The varimax rotation presented the most interpretable solution so was used

in all subsequent analyses. Less than 0.1% of data was missing and univariate values for skewness (< 2) and kurtosis (< 2) indicated no issues. Sample size was deemed appropriate (KMO = .923). Bartlett's test of sphericity ($\chi^2$ (2485) = 10642.5, $p$ < .001) indicated correlations between items were sufficiently large for EFA.

#### 4.4.2.1. Exploratory Factor Analysis

For EFA, the rotated matrix was examined and items with a weak loading (< .30) were removed and the analysis re-run. In total, 25 items were removed at this stage. Next, a further nine items were removed because they loaded significantly (> .30) on two or more factors. A 6-factor, 33-item solution emerged with eigenvalues greater than 1, explaining 47.70% of the variance (KMO = .911; Bartlett's test of sphericity: $\chi^2$ (528) = 4469.8, $p$ < .001). Compliant sportspersonship subscales towards officials, rules, opponent, and legitimacy of injurious acts, were identified. Principled sportspersonship towards game perspective, and opponent emerged. Factor structure with item means, standard deviations, and factor loadings are displayed in Table 4.4. The model developed, as a result of EFA, supports the viability of a model that differentiates between compliant and principled sportspersonship. Further evidence of this can be found in Table 4.5, where factor correlations are displayed. While significant correlations are a sign of related constructs, Kline (2005) suggests that very high associations ($r$ > .90) indicate that a factor or construct may be redundant. All factor correlations were significant ($p$ < .001) ranging between $r$ = .38 to $r$ = .74, except for the coefficient between compliant opponent and principled opponent ($r$ = .16, $p$ = .07).

It is important to note at this stage that the existence of a higher order model of sportspersonship, which includes overarching subscales for compliant and principled sportspersonship above the five presented dimensions, is purely speculative. The items included present information to suggest that such a higher order model may exist, but this

cannot be tested through EFA. Examination of the factor correlations in Table 4.5 presents equivocal findings. While there is a clear correlation between principled opponent and game perspective ($r$ = .52, $p$ < .01), this is proportionate to other factor correlations. To examine the potential for a higher-order model in more detail, confirmatory factor analysis and/or exploratory structural equation modelling are required.

#### 4.4.2.2. Reliability Analysis

To examine internal consistency, composite reliability was used alongside Cronbach's alpha coefficient after Raykov (1997) demonstrated that it is less likely to underestimate scale reliability. Reliability was also assessed by calculating the average variance explained (Fornell & Larcker, 1981), examining the interitem correlation matrices (Schmitt, 1996), and calculating the average interitem correlation (Briggs & Cheek, 1986). Composite reliability and Cronbach's alpha coefficients demonstrated satisfactory levels in all factors (> .70) (Table 4.5). Further scale analysis considered Cronbach's alpha for a higher-order compliant factor (compliant officials, compliant rules, compliant opponent, and injurious acts items), which demonstrated good internal consistency (α = 90), and principled factor (game perspective and principled component items), which also demonstrated good internal consistency (α = .82). Finally, all items were included in an overall sportspersonship scale, which again presented good internal consistency (α = .92), as would be expected in any lengthy scale with positive interitem correlations.

Average variance explained was largely consistent across factors, though the principled opponent was the lowest (AVE = .34). Despite this, the factor loadings and internal consistency were enough to retain the subscale.

Table 4.6 presents an overview of the interitem correlations for each factor. No items correlate too highly (e.g., > .90), which would indicate redundancy. The lowest correlations where found within the principled opponent factor but as the internal consistency for both

Cronbach's alpha and composite reliability were just greater than .70; a six-factor model was taken forward.

**Table 4.4.**
**33-item Factor Structure with Item Means, Standard Deviations and Factor Loadings (FL)**

| Item | M | SD | Factor | FL |
|---|---|---|---|---|
| I never argue with a referring decision even if I feel it is wrong | 2.30 | 0.95 | Cof | .764 |
| I never argue with officials | 2.49 | 0.87 | Cof | .740 |
| I never vent my frustrations on match officials | 2.62 | 0.96 | Cof | .688 |
| The official's decision is final and I accept that | 2.75 | 0.86 | Cof | .593 |
| I listen to the officials | 2.94 | 0.77 | Cof | .598 |
| I respect the official's decision even when it is wrong | 2.42 | 0.74 | Cof | .597 |
| I do not swear at officials | 2.89 | 1.06 | Cof | .607 |
| I abide by all of the rules in my sport | 2.77 | 0.77 | Cru | .684 |
| I would never cheat even if I thought it would help me win | 2.65 | 0.77 | Cru | .662 |
| I would never cheat in order to win | 2.92 | 0.92 | Cru | .524 |
| I always obey the rules of my sport | 2.77 | 0.79 | Cru | .596 |
| I would not bend the rules to win | 2.68 | 0.85 | Cru | .474 |
| It is wrong to test the boundaries to see what I can get away with | 2.54 | 0.83 | Cru | .418 |
| It is wrong to intimidate an opponent | 2.26 | 0.84 | Cop | .684 |
| It is wrong to wind up an opponent to inhibit their performance | 2.18 | 0.89 | Cop | .684 |
| It is wrong to distract an opponent to gain an advantage | 2.38 | 0.81 | Cop | .506 |
| I would not intentionally intimidate an opponent through fouling | 2.74 | 0.98 | Cop | .482 |
| I play hard but make sure that I do not injure my opponent | 3.03 | 0.86 | IA | .679 |
| I would not intentionally injure an opponent to gain advantage | 3.28 | 0.84 | IA | .592 |
| I refrain from tactics that could injure my opponent | 2.91 | 0.89 | IA | .526 |
| I would never intentionally foul an opponent | 2.78 | 0.91 | IA | .375 |
| Winning is not always the most important part of sport | 2.55 | 0.88 | GP | .618 |
| I would rather be respected for my actions than merely winning | 2.85 | 0.80 | GP | .518 |
| It is more important to play fair than to win | 2.70 | 0.79 | GP | .644 |
| I do not believe in winning at all costs | 2.51 | 0.94 | GP | .484 |
| It is more important to do what is right than to win | 2.63 | 0.77 | GP | .551 |
| I consider myself a good loser | 2.59 | 0.97 | GP | .396 |
| I would rather lose with grace than win with dishonesty | 2.84 | 0.90 | GP | .461 |
| I would go out of my way to congratulate an opponent | 2.72 | 0.89 | Pop | .626 |
| I will always congratulate my opponent on his or her victory | 3.10 | 0.87 | Pop | .691 |
| I truly respect a worthy opponent | 3.28 | 0.68 | Pop | .526 |
| I would go out of my way to help an injured opponent | 3.08 | 0.77 | Pop | .408 |
| At times I will acknowledge my opponents good play | 3.09 | 0.79 | Pop | .445 |

*Note.* Cof = Compliant Officials; Cru = Compliant Rules; Cop = Compliant Opponent; IA = Injurious Acts, GP = Game Perspective; Pop = Principled Opponent.

**Table 4.5.**
**Factor correlations with normality and reliability estimates**

| Factor | Skew | Kurt | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|---|
| 1. Compliant Officials | .07 | -.62 | (.87) | | | | | |
| 2. Compliant Rules | -.13 | -.29 | .58** | (.84) | | | | |
| 3. Compliant Opponent | .08 | -.45 | .43** | .67** | (.73) | | | |
| 4. Injurious Acts | -.40 | -.39 | .38** | .72** | .40** | (.76) | | |
| 5. Game Perspective | -.13 | -.25 | .58** | .74** | .63** | .67** | (.81) | |
| 6. Principled Opponent | -.27 | -.32 | .49** | .47** | .16 | .53** | .52** | (.72) |
| Cronbach's α | | | .87 | .84 | .74 | .75 | .80 | .71 |
| AVE | | | .49 | .47 | .41 | .44 | .38 | .34 |

*Note.* AVE = Average Variance Explained. Composite reliability estimates are shown in parentheses along the diagonal.
*Statistically significant correlation at $p < .05$, ** $p < .01$.

#### 4.4.2.3. Gender, Age, Experience, Sport Type and Sportspersonship

To begin to understand how the construct works in practice, and determine whether expected demographic variations are evident, a MANOVA was conducted on the sample to investigate main effects for gender and sport type. Correlational analysis examined the relationship between age and experience with sportspersonship. MANOVA (see Table 4.7) revealed a significant effect for gender ($V = .06$, $F(9, 328) = 2.48$, $p < .01$), where females reported significantly higher values for compliant rules (males $M = 2.63$, $SD = .64$, females $M = 2.89$, $SD = .52$, $p < .05$, $d = -.43$), legitimacy of injurious acts (males $M = 2.88$, $SD = .68$, females $M = 3.20$, $SD = .59$, $p < .01$, $d = -.49$), compliant opponent (males $M = 2.24$, $SD = .65$, females $M = 2.63$, $SD = .61$, $p < .01$, $d = -.61$), and game perspective (males $M = 2.56$, $SD = .61$, females $M = 2.83$, $SD = .47$, $p < .01$, $d = -.48$).

**Table 4.6.**
**Interitem correlations matrices for each factor**

| | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 | Item 6 |
|---|---|---|---|---|---|---|
| **Compliant Officials, items *n* = 7, Mean IIC = .48** | | | | | | |
| Item 2 | .68 | | | | | |
| Item 3 | .50 | .49 | | | | |
| Item 4 | .60 | .52 | .44 | | | |
| Item 5 | .49 | .51 | .35 | .54 | | |
| Item 6 | .47 | .47 | .38 | .44 | .50 | |
| Item 7 | .42 | .47 | .43 | .47 | .42 | .51 |
| **Compliant Rules, items *n* = 6, Mean IIC = .47** | | | | | | |
| Item 2 | .58 | | | | | |
| Item 3 | .44 | .46 | | | | |
| Item 4 | .50 | .54 | .51 | | | |
| Item 5 | .43 | .46 | .52 | .51 | | |
| Item 6 | .39 | .40 | .37 | .40 | .48 | |
| **Compliant Opponent, items *n* = 4, Mean IIC = .42** | | | | | | |
| Item 2 | .43 | | | | | |
| Item 3 | .41 | .46 | | | | |
| Item 4 | .36 | .41 | .44 | | | |
| **Injurious Acts, items *n* = 4, Mean IIC = .43** | | | | | | |
| Item 2 | .46 | | | | | |
| Item 3 | .47 | .52 | | | | |
| Item 4 | .39 | .34 | .42 | | | |
| **Principled Opponent, items *n* = 5, Mean IIC = .33** | | | | | | |
| Item 2 | .24 | | | | | |
| Item 3 | .21 | .41 | | | | |
| Item 4 | .22 | .33 | .37 | | | |
| Item 5 | .30 | .52 | .36 | .34 | | |
| **Game Perspective, items *n* = 7, Mean IIC = .37** | | | | | | |
| Item 2 | .31 | | | | | |
| Item 3 | .35 | .48 | | | | |
| Item 4 | .31 | .32 | .27 | | | |
| Item 5 | .34 | .33 | .45 | .27 | | |
| Item 6 | .30 | .33 | .44 | .30 | .40 | |
| Item 7 | .39 | .44 | .51 | .31 | .52 | .51 |

*Note.* IIC = Interitem Correlation.

Further, females scored significantly higher for overall compliant sportspersonship (males $M = 2.58$, $SD = .50$, females $M = 2.84$, $SD = .44$, $p < .01$, $d = -.54$). Females also demonstrated higher principled sportspersonship than males (males $M = 2.76$, $SD = .50$, females $M = 2.93$, $SD = .42$, $p < .05$, $d = -.36$), and overall sportspersonship (males $M = 2.59$, $SD = .42$, females $M = 2.88$, $SD = .38$, $p < .01$, $d = -.71$). This is consistent with previous

assessments of sex effects, as Tsai and Fung (2005) found that males held significantly lower regard for sportspersonship using the MSOS. Further, Meyer, Jorn, and Mayhew (2007) claimed that male rugby players were less sporting than females, though this was based on an assumption that high competitiveness implies low sportspersonship. Bredemeier (1985) found that males were more likely to endorse potentially injurious acts than females. This finding has been found consistently since (Bredemeier et al., 1987; Duda et al., 1991; Miller et al., 2005).

**Table 4.7.**
**Mean and standard deviation data for gender and sport type**

| Variable | Team | | Individual | |
|---|---|---|---|---|
| | Male | Female | Male | Female |
| Compliant Officials | 2.52 (.70) | 2.64 (.56) | 2.76 (.67) | 2.97 (.49) |
| Compliant Rules | 2.53 (.58) | 2.81 (.49) | 3.03 (.73) | 3.10 (.56) |
| Compliant Opponent | 2.19 (.63) | 2.57 (.62) | 2.46 (.67) | 2.77 (.56) |
| Injurious Acts | 2.84 (.64) | 3.17 (.59) | 3.06 (.81) | 3.29 (.58) |
| Game Perspective | 2.51 (.58) | 2.80 (.48) | 2.74 (.68) | 2.91 (.45) |
| Principled Opponent | 2.99 (.54) | 3.02 (.53) | 3.19 (.64) | 3.21 (.48) |
| Compliant | 2.52 (.46) | 2.78 (.43) | 2.84 (.60) | 3.03 (.42) |
| Principled | 2.71 (.46) | 2.89 (.42) | 2.93 (.61) | 3.04 (.42) |
| Overall Sportspersonship | 2.59 (.42) | 2.82 (.36) | 2.87 (.58) | 3.03 (.38) |

There was a significant effect for sport type ($V = .10$, $F(9, 328) = 4.07$, $p < .01$), where individual sports performers reported significantly higher values for compliant officials (team $M = 2.56$, $SD = .66$, individual $M = 2.85$, $SD = .61$, $p < .01$, $d = -.45$), compliant rules (team $M = 2.62$, $SD = .57$, individual $M = 3.06$, $SD = .66$, $p < .01$, $d = -.74$), compliant opponent (team $M = 2.31$, $SD = .65$, individual $M = 2.59$, $SD = .64$, $p < .01$, $d = -.43$), game perspective (team $M = 2.61$, $SD = .57$, individual $M = 2.81$, $SD = .60$, $p < .05$, $d = -.35$), and principled opponent (team $M = 3.00$, $SD = .54$, individual $M = 3.20$, $SD = .58$, $p < .01$, $d = -.36$). Further, individual performers were significantly higher in compliant sportspersonship (team $M = 2.60$, $SD = .46$, individual $M = 2.92$, $SD = .54$, $p < .01$, $d = -.66$), principled sportspersonship (team $M = 2.77$, $SD = .46$, individual $M = 2.98$, $SD = .53$, $p < .01$,

*d* = -.44), and overall sportspersonship (team *M* = 2.66, *SD* = .41, individual *M* = 2.94, *SD* = .51, $p < .01$, *d* = -.64).

Age revealed small but significant positive correlations with compliant officials ($r = .20$, $p < .01$), injurious acts ($r = .13$, $p < .05$), game perspective ($r = .13$, $p < .05$), and principled opponent ($r = .17$, $p < .01$). Further, similar correlations were found for compliant sportspersonship ($r = .16$, $p < .01$), principled sportspersonship ($r = .17$, $p < .01$), and overall sportspersonship ($r = .18$, $p < .01$). Experience yielded no significant relationships. This is contradictory to the results of previous researchers examining sportspersonship. In particular, Tsai and Fung (2005) found that younger performers possessed greater regard for sportspersonship. Priest et al. (1999) attempted to establish if college athletes' ethical behaviour developed over a four year period. Contrary to expectations, the authors found ethical behaviour decreased. Bredemeier and Shields (1986) found that more experienced performers were more likely to legitimise rule-violating behaviours while Blair (1985) identified that those who had competed for longer demonstrated a lower emphasis on playing fairly and a greater emphasis on winning.

### 4.4.3. Discussion

This study outlines the development of a 33-item, six-factor model of sportspersonship comprising of (a) respect towards officials, (b) adherence to rules, (c) compliance towards opponent, (d) not legitimising injurious acts, (e) a game perspective, and (f) principled approach towards opponent. This model has been informed by the model from Vallerand et al. (1996, 1997), who included respect towards rules and officials, and respect and concern for the opponent. The separation of rules and officials, as initially referred to by Treasure and Roberts (2001) appears valid, as both are clear factors in this model, distinct from each other. The model also includes the extent to which injurious acts are legitimised, informed by the work of Bredemeier (1985) and Bredemeier et al. (1987).

The principled aspects of the model, towards opponent and game perspective, have drawn on developments in research indicating that morality has different levels. For example, Bandura (1999) discusses inhibitive and proactive aspects of morality. This is best represented by the two opponent-based factors. Compliance towards opponents is effectively a demonstration of inhitive morality, as is respect towards officials, adherence to rules and the non-legitimisation of injurious acts. All of these components reflect a general adherence to expected attitudes and behaviours. In effect, the individual is demonstrating sportspersonship by inhibiting behaviours contradictory to good sportspersonship. A principled approach towards an opponent however refers to a more proactive aspect of morality. This requires the individual's attitude or behaviour to go beyond mere expectation or to truly value the wellbeing of the opponent above personal gain. The game perspective is an entirely new and distinctive component of sportspersonship. This factor has its roots in the work of Kohlberg (1976) on moral reasoning. In particular, Kohlberg identified post-conventional morality as principled in its approach, based on universal ethical principles rather than societal norms. Such an approach towards sportspersonship requires the individual to understand the context of sport. Specifically, one must identify an extent to which they value winning in sport. Logically, it follows that the greater the individual perceives the value of winning, the more likely they are to transgress typical sportspersonship behaviours to achieve it. Consequently, the extent to which one transgresses sportspersonship behaviours may be determined by their perspective on the importance of winning.

This study has successfully developed a new model of sportspersonship, distinct from previous research. The new model includes aspects of Vallerand et al.'s (1996, 1997) model, empirically shown to be psychometrically sound. In addition, it includes aspects of morality from a structural- and cognitive-developmental approach to present a more holistic model of sportspersonship behaviours, attitudes, and perspective. However, there are some limitations.

Firstly, the sample size, while acceptable, was relatively small for this type of analysis. Secondly, it was anticipated that a factor would be extracted related to the extent performers adhere to social conventions or value the integrity of the game. However, factor loadings did not demonstrate a viable dimension related to this. This is unfortunate, as it appears logical that this forms part of a holistic sportspersonship model.

In summary, this study has presented a 33-item, six-factor model of compliant and principled sportspersonship, which requires further testing to determine its validity. The extent to which a higher-order exists distinguishing between compliant and principled approaches is not yet clear, but will be examined in Study 3.

## 4.5. General Discussion

The purpose of this chapter was two-fold; firstly, to examine the validity of the MSOS, and secondly, to develop a new scale to supersede it. The MSOS demonstrated a fairly clear factor structure, which supports the inclusion of some of the factors in the new model. The negative approach and full commitment dimensions however were rejected on psychometric and conceptual grounds. The analysis supported the split of the respect for rules and officials factor. Initial scale development from Study 2 added new dimensions to the definition of sportspersonship. Specifically, these were the legitimacy of injurious acts and game perspective. There is also a suggestion that approach towards opponent could be split into compliant and principled domains. The next two chapters of this thesis examine the validity of this new scale.

# Chapter 5:
# Testing the Compliant and Principled Sportspersonship Model

## 5.1. Summary

This chapter reports evidence for the initial validity of the compliant and principled sportspersonship scale using a series of confirmatory factor analyses on an independent sample of 502 sports participants suggesting a 24-item, 5-factor model with good fit. This model is the culmination of work reported in the preceding chapters of the thesis. Further examination of the validity of the model and the measure are presented in the following chapters.

The second part of this chapter focuses on the factorial and construct validity of the compliant and principled sportspersonship scale (CAPSS). Specifically, an independent sample of 207 sports performers completed CAPSS alongside measures of goal orientations and prosocial and antisocial behaviour in Study 4. Further confirmatory factor analysis and exploratory structural equation modelling were conducted on this sample. Associations between sportspersonship, goal orientations and self-reported moral behaviour act as evidence for the construct validity of CAPSS and inform the conceptual links between motivation, sportspersonship, and moral behaviour.

The final study in the chapter examined the relationship between mental toughness, personality, dark personality and sportspersonship. Using a sample of 102, this study enables greater understanding of the concept of sportspersonship. Specifically, the lack of association with mental toughness, suggesting that the two are mutually exclusive. This study also provides more robust support for the construct validity of CAPSS.

## 5.2. Introduction

The previous chapter detailed the development of a new model of compliant and principled sportspersonship. The validation of a psychometric scale however needs to be thorough. The next stage was to examine the factorial validity and reliability of the new scale. This was the first purpose of this chapter. While this can identify good content and factorial

validity, it is important to test invariance across samples. It is necessary for the model to show that model fit is not sample-specific. Consequently, further CFA and ESEM analyses are therefore required.

Previous research (Duda et al., 1991; Dunn & Causgrove-Dunn, 1999; Vallerand & Losier, 1994) has established conceptual relationships between achievement goal orientations and sportspersonship. By examining this in relation to the new model, two further purposes are achieved; firstly, the hypothesised relationships between the constructs are tested on a new model and secondly, the construct validity of the new measure is examined.

## 5.3. Study 3: An Examination of the Factorial Validity of the Compliant and Principled Sportspersonship Scale

The purpose of this study was to test the measurement model developed in Study 2. To achieve this, a series of confirmatory factor analyses and exploratory structural equation modelling were conducted on a large, independent sample. This process included an element of model refinement and testing the existence of a higher-order model.

### 5.3.1. Methods

#### 5.3.1.1. Participants

An independent sample of 502 participants (men $n$ = 334; women $n$ = 168) aged from 15 to 51 years ($M$ = 20.63, $SD$ = 5.05), from a range of team sports ($n$ = 368) and individual sports ($n$ = 134) with an average playing experience of 10.24 years ($SD$ = 5.21) in their main sport were recruited.

#### 5.3.1.2. Measures

The sample completed the 33-item CAPSS, which was proposed in Study 3. As before, this included a 4-point Likert-type scale anchored by 1 = *strongly disagree* and 4 = *strongly agree*.

#### 5.3.1.3. Procedure

A very similar procedure to Study 2 was followed in Study 3, with participants receiving exactly the same instructions. To obtain participants from team sports, head coaches of teams were contacted by telephone and data collection occurred before training. For participants from individual sports, clubs were approached and members asked to participate. Further individual sports performers were sought from student populations in a UK university. Participants were informed of the purpose of the data collection and a total of 540 questionnaires were distributed to the second sample, of which 502 were completed and returned, representing a response rate of 91.77%. Completion of informed consent form and the 33-item CAPSS took approximately 10-15 minutes.

#### 5.3.1.4. Data Analysis

Data was initially screened for missing data, outliers, and normality. All analysis was completed in Mplus 7.0 (Muthén & Muthén, 2012). CFA was conducted using the robust maximum likelihood estimator. Scale refinement took place by examining modification indices and factor loadings. To test for the existence of a higher-order model, an extra level was constructed and compared to the initial model. Further, a two-factor and single-factor model was also tested. ESEM was then conducted on the best fitting CFA model with standardised parameter estimates analysed. The two-factor model in ESEM further examined potential higher-order models. Finally, demographic effects for gender, age, and sport type were examined.

### 5.3.2. Results

#### 5.3.2.1. Descriptive Statistics

Preliminary analysis screened for missing data, which was negligible (< 0.1%). Outliers were examined using Q-Q plots and presented no issues. Normality estimates presented no issues at item level for skewness (< 2) or kurtosis (< 2). Descriptive statistics

demonstrated that the full range of scores had been used for each item and a sufficient spread was achieved. The descriptive statistics are presented in Table 5.1.

**Table 5.1.**
**33-item Factor Structure with descriptive statistics and normality estimates**

| Item | Factor | M | SD | Min | Max | Skew | Kurt |
|---|---|---|---|---|---|---|---|
| I never argue with a referring decision even if I feel it is wrong | Cof | 2.37 | .92 | 1 | 4 | .24 | -.73 |
| I never argue with officials | Cof | 2.51 | .85 | 1 | 4 | .18 | -.62 |
| I never vent my frustrations on match officials | Cof | 2.68 | .94 | 1 | 4 | -.09 | -.92 |
| The official's decision is final and I accept that | Cof | 2.84 | .85 | 1 | 4 | -.19 | -.74 |
| I listen to the officials | Cof | 3.00 | .74 | 1 | 4 | -.47 | .12 |
| I respect the official's decision even when it is wrong | Cof | 2.40 | .75 | 1 | 4 | .20 | -.20 |
| I do not swear at officials | Cof | 2.94 | 1.02 | 1 | 4 | -.50 | -.96 |
| I never break the rules of my sport | Cru | 2.71 | .74 | 1 | 4 | -.16 | -.23 |
| I abide by all of the rules in my sport | Cru | 2.80 | .76 | 1 | 4 | -.18 | -.35 |
| I would never cheat in order to win | Cru | 3.00 | .90 | 1 | 4 | -.53 | -.58 |
| I always obey the rules of my sport | Cru | 2.84 | .76 | 1 | 4 | -.23 | -.30 |
| I would not bend the rules to win | Cru | 2.76 | .85 | 1 | 4 | -.19 | -.61 |
| It is wrong to test the boundaries to see what I can get away with | Cru | 2.58 | .84 | 1 | 4 | .01 | -.58 |
| It is wrong to intimidate an opponent | Cop | 2.28 | .85 | 1 | 4 | .11 | -.68 |
| It is wrong to wind up an opponent to inhibit their performance | Cop | 2.21 | .90 | 1 | 4 | .42 | -.53 |
| It is wrong to distract an opponent to gain an advantage | Cop | 2.42 | .82 | 1 | 4 | .13 | -.48 |
| I would not intentionally intimidate an opponent through fouling | Cop | 2.80 | .94 | 1 | 4 | -.35 | -.78 |
| I play hard but make sure that I do not injure my opponent | LIA | 3.05 | .87 | 1 | 4 | -.65 | -.24 |
| I would not intentionally injure an opponent to gain advantage | LIA | 3.33 | .84 | 1 | 4 | -1.08 | .35 |
| I refrain from tactics that could injure my opponent | LIA | 2.95 | .89 | 1 | 4 | -.36 | -.80 |
| I would never intentionally foul an opponent | LIA | 2.83 | .90 | 1 | 4 | -.25 | -.82 |
| I would go out of my way to congratulate an opponent | Pop | 2.73 | .87 | 1 | 4 | -.15 | -.70 |
| I will always congratulate my opponent on his or her victory | Pop | 3.13 | .84 | 1 | 4 | -.68 | -.23 |
| I truly respect a worthy opponent | Pop | 3.28 | .68 | 1 | 4 | -.70 | .39 |
| I would go out of my way to help an injured opponent | Pop | 3.07 | .78 | 1 | 4 | -.56 | -.04 |
| At times I will acknowledge my opponents good play | Pop | 3.10 | .76 | 1 | 4 | -.64 | .28 |
| Winning is not always the most important part of sport | PGP | 2.61 | .88 | 1 | 4 | -.22 | -.63 |
| I would rather be respected for my actions than merely winning | PGP | 2.90 | .77 | 1 | 4 | -.31 | -.27 |
| It is more important to play fair than to win | PGP | 2.73 | .77 | 1 | 4 | -.22 | -.26 |
| I do not believe in winning at all costs | PGP | 2.52 | .94 | 1 | 4 | -.08 | -.86 |
| It is more important to do what is right than to win | PGP | 2.67 | .76 | 1 | 4 | -.19 | -.26 |
| I consider myself a good loser | PGP | 2.87 | .95 | 1 | 4 | -.22 | -.86 |
| I would rather lose with grace than win with dishonesty | PGP | 2.90 | .88 | 1 | 4 | -.39 | -.60 |

*Note.* Cof = Compliant Officials; Cru = Compliant Rules; Cop = Compliant Opponent; LIA = Legitimacy of Injurious Acts, GP = Game Perspective; Pop = Principled Opponent.

#### 5.3.2.2. Confirmatory factor analyses

Following the development of a 6-factor structure, a series of models were tested using CFA. As multivariate kurtosis indicated that the assumptions of normal distribution were violated (Mardia's coefficient = 196.4, normalized estimate = 41.0), the robust maximum likelihood estimation method was employed. This provides more accurate estimates when data is not normally distributed (Bentler, 2006).

The indices used to test model fit were chi-square ($\chi^2$), comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error or approximation (RMSEA), and standardized root mean square residual (SRMR). Typically, model development and testing is subject to rigid cutoff values for fit indices. CFI and TLI values equal to or greater than .95 are purported to indicate acceptable model fit and RMSEA values below .06 and SRMR values below .08 further indicate good model fit (Hu & Bentler, 1999). However, following the findings from Perry et al. (2015) and previous warnings from researchers (e.g., Hopwood & Donnellan, 2010; Marsh et al., 2004), use of fit indices as cut-off values for acceptable model fit were considered as subjective guidelines.

The first model assessed was the 33-item, 6-factor model which demonstrated a reasonable, but not acceptable fit (Table 5.2, row 1). Modification indices indicated a high error covariance between items within the rules factor. Consequently, one item was removed from the model. Further inspection of regression weights identified two weak items within the compliant officials factor and one weak item within the principled game perspective factor therefore, these items were removed, which provided a 29-item, 6-factor model (Table 5.2, row 2). Model fit was improved marginally but the compliant opponent factor demonstrated relatively low factor loadings. Therefore, this factor was deleted to produce a 25-item, 5-factor single order model (Table 5.2, row 3). One further item was removed from the principled opponent subscale after presenting a weak factor loading (< .40). This model

demonstrated acceptable fit in all fit indices (Table 5.2, row 4). By identifying significant modification indices (i.e., > 10) and allowing them to be estimated, chi-square will be decreased, thus yielded a better statistical model fit. The use of modification indices to respecify poorly fitting models was effectively demonstrated by MacCullum (1986) and further recommended by Saris, den Ronden, and Satorra (1987) and Saris et al. (2009). However, all of these authors offer caution with this approach, as decisions to respecify a model must have theoretical relevance and not be purely data driven. Therefore, to get more of a feel of the true model fit, only errors from within subscales were correlated. Of the eight significant modifications identified, seven were within the same subscale and therefore freed to be estimated. This further improved model fit (Table 5.2, row 5).

**Table 5.2.**
**Summary of Fit Indices for all CFA Models**

| Model | $\chi^2$ | *df* | $\chi^2/df$ | CFI | TLI | SRMR | RMSEA |
|---|---|---|---|---|---|---|---|
| 1. 33-item, 6-factor | 963.0 | 480 | 2.01 | .895 | .885 | .055 | .047 |
| 2. 29-item, 6-factor | 754.6 | 362 | 2.08 | .900 | .888 | .054 | .048 |
| 3. 25-item, 5-factor | 498.9 | 265 | 1.88 | .926 | .916 | .052 | .044 |
| 4. 24-item, 5-factor | 455.9 | 242 | 1.84 | .931 | .921 | .051 | .044 |
| 5. 24-item, 5-factor (mod) | 351.9 | 235 | 1.50 | .962 | .955 | .042 | .033 |
| 6. 24 item, 2-factor | 1034.6 | 251 | 4.12 | .746 | .720 | .077 | .082 |
| 7. 24-item, single-factor | 1152.9 | 252 | 4.58 | .707 | .680 | .080 | .088 |

*Note.* $\chi^2$ = chi-square; *df* = degrees of freedom; CFI = comparative fit index; TLI = Tucker-Lewis index; SRMR = standardized root mean square residual; RMSEA = root mean square error of approximation.

As advocated by Kavussanu and Boardley (2012), further models were developed to assess model fit when aggregating responses to form an overall score for compliant and principled sportspersonship (two-factor model) and an overall sportspersonship score (single-factor model). The two-factor model fit was low (Table 5.2, row 6), indicating that the subscales within each overriding factor are relatively independent. Using traditional fit index guidelines does not support the higher-order model, suggesting that the five remaining factors should be considered relatively independent. Evidence at this point to suggest that subscales should be aggregated to create scores for compliant sportspersonship and principled

sportspersonship is equivocal. Similarly, the single-factor, unidimensional model (Table 5.2, row 7) fit was also low. Therefore, at this point it is not possible to unequivocally support the notion of aggregating the model to present an overall measure of sportspersonship. It is of course unlikely that any model with factors significantly different enough to be extracted separately will be similar enough to present a good model fit. There appears to be no guidelines on this in the published literature. Notions of higher-order models are explored further below.

While the 2-factor model and single factor model failed to achieve a particularly strong model fit, inspection of the standardised parameter estimates for these models indicate that all items loaded significantly onto their higher-order factor in both models (Table 5.3).

**Table 5.3.**
**Standardised parameter estimates for CFA single-factor and 2-factor models**

| Item | Single-factor | 2-factor | |
|---|---|---|---|
| | | Compliant | Principled |
| 1 | .52** | .55** | |
| 4 | .55** | .57** | |
| 6 | .55** | .56** | |
| 9 | .52** | .55** | |
| 22 | .48** | .49** | |
| 3 | .60** | .62** | |
| 5 | .61** | .65** | |
| 10 | .68** | .70** | |
| 14 | .51** | .51** | |
| 18 | .69** | .69** | |
| 8 | .41** | .41** | |
| 12 | .50** | .50** | |
| 17 | .47** | .47** | |
| 19 | .60** | .61** | |
| 13 | .65** | | .73** |
| 15 | .49** | | .59** |
| 16 | .61** | | .67** |
| 20 | .49** | | .55** |
| 2 | .44** | | .49** |
| 7 | .63** | | .65** |
| 11 | .39** | | .40** |
| 21 | .43** | | .48** |
| 22 | .29** | | .31** |
| 23 | .27** | | .26** |

*statistically significant at $p < .05$; **$p < .01$

#### 5.3.2.3. Exploratory Structural Equation Modelling

CFA is a robust technique for testing an a priori model, but does have significant limitations. Specifically, all non-target loadings are assumed to be zero and therefore, non-significant cross-loadings from items to factors other than their intended one result in model misspecification (Marsh et al., 2004). ESEM has the potential to be used in both the development and testing of a psychometric scale (Marsh et al., 2011). As this technique is relatively new, however, it seemed more sensible to use it to supplement the more recognised CFA methods in this thesis. The two approaches combined provide a robust assessment of the factorial structure and validity of a measure. To account for such loadings, ESEM was employed, as advocated by Marsh et al. (2009), Marsh, Liem, Martin, Morin, and Nagengast (2011), and Perry et al. (2015). The 24-item, 5-factor, model fitted the data very well: $\chi^2(166) = 231.9$, $\chi^2/df = 1.40$, CFI = .979, TLI = .964, SRMR = .024, RMSEA = .029, 95% CI [.020, .038]. The standardised parameter estimates for the CFA and ESEM are presented in Table 5.4. The ESEM estimates support the model, as all intended factor loadings were significant and there were no significant cross loadings ($p < .01$). All $R^2$ values were significant, suggesting that all items explained a significant amount of variance.

#### 5.3.2.4. Higher-order Modelling

With a potential higher-order model, it is necessary to consider the extent to which the factors are assessing the same overriding construct. As such, correlational analysis was conducted on factors. High correlations indicate that the overall construct is a measure in its own right as well as each factor. For example, significant correlations between factors indicate that the scale can be used to present compliant, principled and overall sportspersonship values. It is worth noting however, that very high correlations may indicate that factors are relatively indistinctive from each other.

**Table 5.4.**
**Standardised parameter estimates for CFA and ESEM for 24-item CAPSS**

| Item | Factor 1 (Compliant Officials) | | Factor 2 (Compliant Rules) | | Factor 3 (Legitimacy of Injurious Acts) | | Factor 4 (Principled Opponent) | | Factor 5 (Principled Game Perspective) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CFA | ESEM | CFA | ESEM | CFA | ESEM | CFA | ESEM | CFA | ESEM | CFA ($R^2$) | ESEM ($R^2$) |
| 1 | .77* | **.80*** | | .07 | | -.05 | | -.02 | | -.07 | .59* | .54* |
| 4 | .75* | **.72*** | | .08 | | -.06 | | -.06 | | .05 | .56* | .63* |
| 6 | .73* | **.74*** | | -.12 | | .04 | | .04 | | .09 | .54* | .25* |
| 9 | .61* | **.54*** | | .08 | | .11 | | .02 | | -.03 | .38* | .64* |
| 22 | .61* | **.56*** | | -.03 | | .03 | | .11 | | .03 | .38* | .57* |
| 3 | | -.03 | .67* | **.73*** | | -.01 | | .01 | | .06 | .45* | .56* |
| 5 | | .08 | .69* | **.80*** | | .00 | | .02 | | -.11 | .48* | .31* |
| 10 | | .06 | .73* | **.53*** | | .14 | | .06 | | .10 | .54* | .45* |
| 14 | | -.08 | .56* | **.36*** | | .11 | | -.12 | | .32 | .31* | .39* |
| 18 | | .06 | .71* | **.33*** | | .21 | | .05 | | .25 | .51* | .52* |
| 8 | | -.05 | | -.03 | .66* | **.77*** | | .04 | | -.04 | .43* | .48* |
| 12 | | .04 | | .08 | .67* | **.61*** | | -.05 | | .03 | .45* | .47* |
| 17 | | -.03 | | .03 | .68* | **.64*** | | .03 | | .06 | .46* | .57* |
| 19 | | .13 | | .15 | .60* | **.33*** | | -.04 | | .22 | .36* | .48* |
| 13 | | .00 | | .13 | | -.07 | .68* | **.73*** | | .02 | .47* | .31* |
| 15 | | -.01 | | -.01 | | .02 | .71* | **.57*** | | .23 | .50* | .25* |
| 16 | | .02 | | -.01 | | .08 | .54* | **.52*** | | .00 | .29* | .55* |
| 20 | | .03 | | .00 | | .18 | .50* | **.44*** | | -.09 | .24* | .35* |
| 2 | | .00 | | .12 | | -.03 | | -.03 | .76* | **.75*** | .58* | .39* |
| 7 | | -.01 | | -.03 | | -.07 | | .04 | .61* | **.69*** | .38* | .45* |
| 11 | | .05 | | .01 | | .11 | | .03 | .69* | **.60*** | .48* | .42* |
| 21 | | .14 | | -.08 | | .07 | | .05 | .56* | **.48*** | .31* | .38* |
| 22 | | .03 | | .08 | | .01 | | -.03 | .51* | **.44*** | .26* | .42* |
| 23 | | .04 | | .23 | | .01 | | .13 | .64* | **.42*** | .41* | .63* |

*Note.* Target loadings from CFA in the ESEM data are presented in bold.
*Statistically significant at $p < .01$.

Correlations between factors (Table 5.5) ranged from .35 to .70 and all were significant ($p < .01$). This supports relative interrelationships among factors while demonstrating that each factor is clearly distinctive from others, providing a broad measure of sportspersonship. Next, a higher-order model to conduct further CFA on was constructed. This presented compliant and principled domains a level above the five identified factors (Figure 5.1.). If the model fit was not significantly different from the lower-order model (e.g., $\Delta$CFI < .01), the higher-order functions were deemed to be further supported. CFA yielded similar results for this model compared to the earlier 24-item, 5-factor model: $\chi^2(246) = 474.4$, $\chi^2/df = 1.93$, CFI = .926, TLI = .917, SRMR = .054, RMSEA = .045. A chi-square

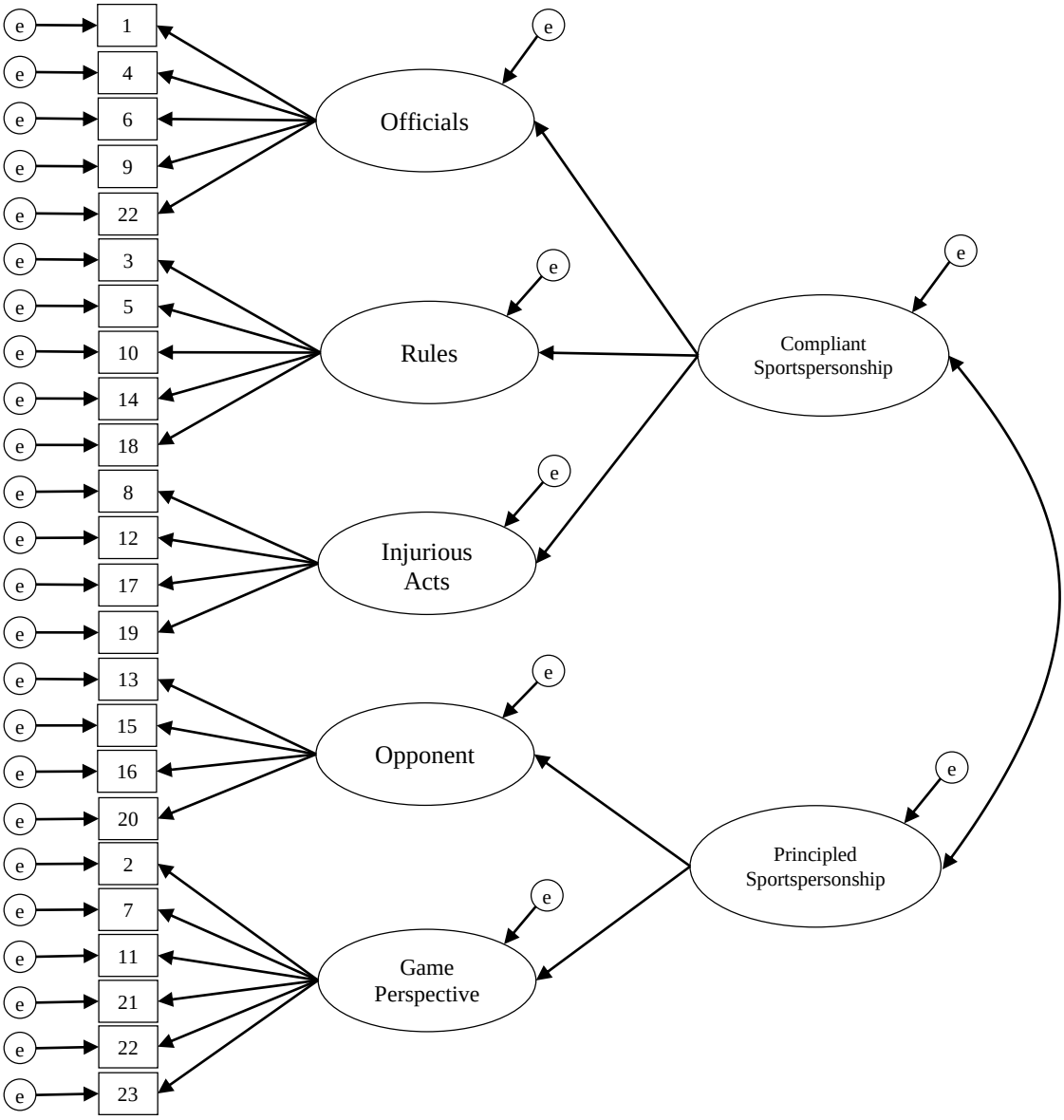
difference test allowing for the robust maximum likelihood estimator however suggested a significant change between the standard and higher-order models (Satorra-Bentler scaled $\chi^2(\Delta df = 4) = 16.59$, $p < .01$).

**Table 5.5.**
**Factor correlations with normality and reliability estimates**

| Factor | Skew | Kurt | AVE | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|
| 1. Compliant Officials | -.05 | -.67 | .52 | (.84) | | | | |
| 2. Compliant Rules | -.10 | -.24 | .48 | .62** | (.82) | | | |
| 3. Injurious Acts | -.51 | -.22 | .44 | .35** | .70** | (.76) | | |
| 4. Principled Opponent | -.18 | -.34 | .41 | .43** | .44** | .42** | (.71) | |
| 5. Game Perspective | -.26 | -.22 | .38 | .55** | .74** | .63** | .47** | (.81) |
| Cronbach's α | | | | .84 | .82 | .75 | .80 | .70 |

*Note.* AVE = Average Variance Explained. Composite reliability estimates are shown in parentheses along the diagonal. *Statistically significant correlation at $p < .05$, **$p < .01$.

Evidence contrary to the existence of a higher-order model can be found in table 5.5. In particular, by examining the relative correlations between subscales. Notably, game perspective correlates greater with compliance towards officials, compliance towards rules, and not legitimising injurious acts than it does with approach towards the opponent. On balance, there is not sufficient evidence at this point to lay claim to a higher-order model.




*Note.* Rectangular shapes represent observed variables (item numbers). Ellipses represent latent variables. e = error term.

**Figure 5.1.**
**Higher-order independent cluster model for confirmatory factor analysis**

To assess aggregating responses further, a second ESEM was constructed, this time with only two factors. Model fit was significantly weaker: $\chi^2(229) = 771.4$, $\chi^2/df = 3.37$, CFI = .824, TLI = .788, SRMR = .060, RMSEA = .007, 95% CI [.066, .077]. Real investigation of the model however though requires examination of the standardised parameter estimates (Table 5.6). The ESEM highlighted two clear factors, though these were not the suggested compliant and principled dimensions. Rather, this model separated compliance towards

officials from all other factors. It appears then that this subscale is less related to other aspects of sportspersonship than rules, legitimisation of injurious acts, approach towards opponent, and game perspective.

**Table 5.6.**
**Standardised parameter estimates for ESEM 2-factor model**

| Item | Factor 1 | Factor 2 |
|---|---|---|
| 1 | .84** | -.08 |
| 4 | .75** | .01 |
| 6 | .68** | .06 |
| 9 | .51** | .14 |
| 22 | .56** | .07 |
| 3 | .13 | .51** |
| 5 | .25** | .42** |
| 10 | .12 | .60** |
| 14 | -.09 | .60** |
| 18 | .04 | .68** |
| 8 | -.29 | .66** |
| 12 | -.18 | .66** |
| 17 | -.24 | .68** |
| 19 | .01 | .61** |
| 13 | .19 | .25** |
| 15 | .09 | .37** |
| 16 | .10 | .22** |
| 20 | .06 | .22** |
| 2 | .01 | .66** |
| 7 | -.01 | .50** |
| 11 | -.01 | .63** |
| 21 | .08 | .45** |
| 22 | .02 | .43** |
| 23 | .08 | .58** |

*Statistically significant at $p < .05$, **$p < .01$

The 24-items retained in the CAPSS are displayed with factor loadings from the CFA and corresponding loadings on intended factors from ESEM analysis are presented in Table 5.7.

**Table 5.7.**
**24-item CAPSS with factor loadings (FL) for CFA and ESEM**

| Item | Factor | CFA FL | ESEM FL |
|---|---|---|---|
| I never argue with a referring decision even if I feel it is wrong | Officials | .77 | .80 |
| I never argue with officials | Officials | .75 | .72 |
| I never vent my frustrations on match officials | Officials | .73 | .74 |
| I do not swear at officials | Officials | .62 | .54 |
| The official's decision is final and I accept that | Officials | .62 | .56 |
| I never break the rules of my sport | Rules | .67 | .73 |
| I abide by all of the rules in my sport | Rules | .69 | .80 |
| I always obey the rules of my sport | Rules | .73 | .53 |
| I would not bend the rules to win | Rules | .71 | .33 |
| It is wrong to test the boundaries to see what I can get away with | Rules | .56 | .36 |
| I would not intentionally injure an opponent to gain advantage | LIA | .67 | .61 |
| I refrain from tactics that could injure my opponent | LIA | .68 | .64 |
| I play hard but make sure that I do not injure my opponent | LIA | .66 | .77 |
| I would never intentionally foul an opponent | LIA | .60 | .33 |
| I will always congratulate my opponent on his or her victory | Opponent | .68 | .73 |
| I truly respect a worthy opponent | Opponent | .54 | .52 |
| At times I will acknowledge my opponents good play | Opponent | .49 | .44 |
| I would go out of my way to congratulate an opponent | Opponent | .68 | .57 |
| I do not believe in winning at all costs | Game Perspective | .51 | .44 |
| I would rather be respected for my actions than merely winning | Game Perspective | .56 | .48 |
| It is more important to do what is right than to win | Game Perspective | .69 | .60 |
| I would rather lose with grace than win with dishonesty | Game Perspective | .64 | .42 |
| Winning is not always the most important part of sport | Game Perspective | .61 | .69 |
| It is more important to play fair than to win | Game Perspective | .76 | .75 |

*Note.* CFA = confirmatory factor analysis, ESEM = exploratory structural equation modelling, FL = factor loading, LIA = legitimacy of injurious acts.

#### 5.3.2.5. Measurement Invariance

If the measurement model obtained is to be used to assess differences between groups, it is necessary to examine the measurement invariance using multi-group CFA (MGCFA) (Cheung & Rensvold, 2002). Consequently, the existing 24-item, five-factor sportspersonship model was tested for configural invariance (items of a scale are indicators of the same factors in different groups, metric invariance (factor loadings are equal across groups) and scalar invariance (intercepts of the items that form a latent construct are invariant across groups). To examine significant changes across groups, Cheung and Rensvold recommend observing $\Delta CFI < .01$.

After the previous study identified significant effects for gender and sport type, these were considered as potential moderators. As the sample size was not adequate for a full moderation analysis, measurement invariance was assessed by splitting the full sample into

two stratified-random subsamples. To do this, male and female participants from team and individual sports were randomly assigned to two subsamples. Subsample A contained 160 males (team = 132, individual = 28) and 79 females (team = 54, individual = 25). Subsample B contained 159 males (team = 131, individual = 28) and 79 females (team = 54, individual = 25). Twenty-five participants were excluded form subsamples because required demographic information was missing. The small age effects of the previous study were unlikely to affect the samples, as mean scores were similar (Subsample A $M$ = 20.83, $SD$ = 4.29, Subsample B $M$ = 20.41, $SD$ = 5.82).

To examine measurement invariance, configural invariance was firstly examined by constructing a MGCFA and imposing the sample model on males and females simultaneously. Secondly, metric invariance was assessed by constraining factor loadings to be equal across groups. Thirdly, scalar invariance was assessed by constraining factor loadings and intercepts across groups and finally, residual invariance was examined by constraining factor loadings, intercepts, and means. The results are presented in Table 5.8.

**Table 5.8.**
**Fit indices for multi-group confirmatory factor analyses**

| Model | $\chi^2$ | *df* | $\Delta\chi^2$ | $\Delta df$ | CFI | TLI | SRMR | RMSEA (95% CI) |
|---|---|---|---|---|---|---|---|---|
| Configural invariance | 777.59 | 484 | - | - | .908 | .895 | .064 | .052 (.045-.059) |
| Metric invariance | 787.60 | 503 | 10.01 | 19 | .911 | .902 | .065 | .050 (.043-.057) |
| Scalar invariance | 811.99 | 522 | 24.39 | 19 | .909 | .904 | .066 | .050 (.043-.056) |
| Residual invariance | 827.51 | 527 | 15.52 | 5 | .906 | .902 | .072 | .050 (.044-.057) |

The baseline, configural model demonstrated a reasonable model fit. Metric invariance was achieved with no significant change in model fit indicating stability when factor loadings are constrained. Similarly, scalar invariance was evident when intercepts were constrained. The strictest invariance testing, residual invariance also demonstrated no

significant change when factor means were constrained. Overall, MGCFA presented full support for measurement invariance.

#### 5.3.2.6. Reliability Analysis

As in Study 2, internal consistency was assessed by calculating Cronbach's alpha and composite reliability (see Table 5.8). All factors again demonstrated satisfactory internal consistency (α and CR > .70). As in Study 2, to examine the use of higher-order scales, Cronbach's alpha was calculated for compliant sportspersonship (α = .87), principled sportspersonship (α = .79), and overall sportspersonship (α = .90). Average variance extracted was largely consistent across factors, though the principled opponent factor AVE was slightly below .40. Examination of the interitem correlation matrices however, demonstrates a very consistent structure to this factor. Overall, patterns from the matrices displayed in Table 5.9 support the internal structure of the scale. Of note, there was generally an increase in mean interitem correlations compared to Study 2.

#### 5.3.2.7. Gender, Age, Experience, Sport Type and Sportspersonship

To further examine the demographic trends from study 2, a MANOVA was conducted on the sample used in this study to again investigate main effects for gender and sport type. Reproducibility of results in different samples is the hallmark of quality research. Consequently, the same demographic variables were assessed as in Study 2. Correlational analysis examined relationships between age and experience with sportspersonship. MANOVA (see Table 5.10) revealed a significant effect for gender ($V$ = .07, $F(8, 466)$ = 4.58, $p$ < .01), where females reported significantly higher values for compliant officials (males $M$ = 2.58, $SD$ = .74, females $M$ = 2.83, $SD$ = .62, $p$ < .01, $d$ = -.36), compliant rules (males $M$ = 2.62, $SD$ = .61, females $M$ = 2.95, $SD$ = .53, $p$ < .01, $d$ = -.57), legitimacy of injurious acts (males $M$ = 2.92, $SD$ = .68, females $M$ = 3.25, $SD$ = .58, $p$ < .01, $d$ = -.51), and game perspective (males $M$ = 2.59, $SD$ = .61, females $M$ = 2.93, $SD$ = .46, $p$ < .01, $d$ = -.60).

Further, females scored significantly higher for overall compliant sportspersonship (males *M* = 2.69, *SD* = .52, females *M* = 2.99, *SD* = .47, $p < .01$, *d* = -.60).

**Table 5.9.**
**Interitem correlations matrices for each factor**

| | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 | Item 6 |
|---|---|---|---|---|---|---|
| **Compliant Officials, items *n* = 5, Mean IIC = .52** | | | | | | |
| Item 2 | .67 | | | | | |
| Item 3 | .60 | .54 | | | | |
| Item 4 | .49 | .49 | .54 | | | |
| Item 5 | .46 | .47 | .47 | .40 | | |
| **Compliant Rules, items *n* = 5, Mean IIC = .48** | | | | | | |
| Item 2 | .60 | | | | | |
| Item 3 | .51 | .55 | | | | |
| Item 4 | .44 | .46 | .52 | | | |
| Item 5 | .39 | .40 | .41 | .49 | | |
| **Injurious Acts, items *n* = 4, Mean IIC = .44** | | | | | | |
| Item 2 | .47 | | | | | |
| Item 3 | .49 | .53 | | | | |
| Item 4 | .38 | .34 | .40 | | | |
| **Principled Opponent, items *n* = 4, Mean IIC = .37** | | | | | | |
| Item 2 | .41 | | | | | |
| Item 3 | .31 | .33 | | | | |
| Item 4 | .51 | .33 | .33 | | | |
| **Game Perspective, items *n* = 6, Mean IIC = .40** | | | | | | |
| Item 2 | .27 | | | | | |
| Item 3 | .34 | .45 | | | | |
| Item 4 | .33 | .34 | .45 | | | |
| Item 5 | .29 | .35 | .48 | .39 | | |
| Item 6 | .38 | .43 | .54 | .52 | .51 | |

*Note.* IIC = Interitem Correlation.

Females also demonstrated higher principled sportspersonship than males (males *M* = 2.77, *SD* = .50, females *M* = 2.99, *SD* = .42, $p < .01$, *d* = -.46), and overall sportspersonship (males *M* = 2.30, *SD* = .47, females *M* = 2.99, *SD* = .39, $p < .01$, *d* = -1.55). These results are entirely consistent with the findings from Study 2.

There was a significant effect for sport type (*V* = .08, $F(8, 466) = 4.93$, $p < .01$), where individual sports performers reported significantly higher values for compliant officials (team *M* = 2.59, *SD* = .72, individual *M* = 2.90, *SD* = .65, $p < .01$, *d*= -.44), compliant rules (team *M* = 2.64, *SD* = .57, individual *M* = 3.06, *SD* = .60, $p < .01$, *d* = -.73),

game perspective (team *M* = 2.65, *SD* = .58, individual *M* = 2.88, *SD* = .56, *p* < .01, *d* = -.40), and principled opponent (team *M* = 3.00, *SD* = .57, individual *M* = 3.24, *SD* = .58, *p* < .01, *d* = -.42). Further, individual performers were significantly higher in compliant sportspersonship (team *M* = 2.72, *SD* = .50, individual *M* = 3.04, *SD* = .54, *p* < .01, *d* = -.63), principled sportspersonship (team *M* = 2.79, *SD* = .43, individual *M* = 3.03, *SD* = .50, *p* < .01, *d* = -.53), and overall sportspersonship (team *M* = 2.75, *SD* = .43, individual *M* = 3.03, *SD* = .49, *p* < .01, *d* = -.63).

**Table 5.10.**
**Mean and standard deviation data for gender and sport type**

| Variable | Team | | Individual | |
|---|---|---|---|---|
| | Male | Female | Male | Female |
| Compliant Officials | 2.53 (.74) | 2.74 (.64) | 2.79 (.73) | 3.02 (.62) |
| Compliant Rules | 2.54 (.56) | 2.88 (.53) | 3.01 (.67) | 3.12 (.51) |
| Injurious Acts | 2.89 (.64) | 3.23 (.61) | 3.08 (.82) | 3.28 (.52) |
| Game Perspective | 2.55 (.60) | 2.89 (.48) | 2.77 (.64) | 3.00 (.43) |
| Principled Opponent | 2.98 (.57) | 3.05 (.55) | 3.31 (.62) | 3.17 (.53) |
| Compliant | 2.64 (.48) | 2.93 (.48) | 2.95 (.62) | 3.13 (.43) |
| Principled | 2.72 (.47) | 2.95 (.41) | 2.98 (.58) | 3.07 (.41) |
| Overall Sportspersonship | 2.67 (.43) | 2.94 (.39) | 3.00 (.41) | 3.11 (.37) |

Like in Study 2, age revealed small but significant positive correlations with compliant officials (*r* = .15, *p* < .01), injurious acts (*r* = .12, *p* < .05), game perspective (*r* = .11, *p* < .05), and principled opponent (*r* = .13, *p* < .01). Further, similar correlations were found for compliant sportspersonship (*r* = .14, *p* < .01), principled sportspersonship (*r* = .15, *p* < .01), and overall sportspersonship (*r* = .16, *p* < .01). Experience presented some small negative correlations for compliant rules (*r* = -.13, *p* < .01), compliant sportspersonship (*r* = -.10, *p* < .05), and overall sportspersonship (*r* = -.09, *p* < .05). Overall, the demographic findings demonstrate strong agreement with those from Study 2.

### 5.3.3. Discussion

The purpose of this study was to test the 33-item, six-factor model developed in Study 3. A reasonable model fit was obtained, after modifications resulted in a 24-item, five-factor model representing (a) respect towards officials, (b) adherence to rules, (c) not legitimising injurious acts, (d) a game perspective, and (e) principled approach towards opponent. This demonstrated a good model fit using both confirmatory factor analysis and exploratory structural equation modelling methods.

Reliability estimates were supported for all subscales through composite reliability, though some average variance explained statistics and interitem correlations were towards the lower end of acceptability. There remains some doubt as to the appropriateness of using the higher-order subscales on compliant and principled sportspersonship. Although the internal consistency in such scales is excellent as a result of increased items per scale, the two-factor model was not supported by acceptable model fit. Indeed, it appears that the officials subscale is significantly different from the other factors. Further examination of a potential higher-order model is required in different samples to determine if it is appropriate. Analysis of the gender, age, experience, and sport type presented similar findings to Study 2 on an independent sample, which is encouraging for the coherence of data obtained using the CAPSS. It is proposed that the 24-item, five-factor CAPSS has demonstrated suitable initial validity and examined further in a separate sample.

## 5.4. Study 4: An Examination of the Effects of Achievement Goal Orientation on Sportspersonship and Moral Behaviour

There is significant support for the predictive capabilities of achievement goal orientation on sportspersonship. As identified previously the notion of examining the motivational predictors of sportspersonship is not new (e.g., Vallerand & Losier, 1994). The extent to which individuals hold task and/or ego orientations has received particular interest

in the past. Previous research has demonstrated a significant link between sportspersonship and goal orientations. In particular, task orientation has been associated with higher sportspersonship (e.g., Dunn & Causgrove-Dunn, 1999; Gano-Overway et al., 2005). Although Dunn and Causgrove-Dunn found a significant negative correlation between ego orientation and sportspersonship, they commented that task orientation had a significant effect irrespective of ego orientation. Consequently, it was hypothesised that there would be a strong positive correlation between task orientation with all sportspersonship dimensions and weaker negative correlations to ego orientation. If one judges success by a task or mastery focus, it is achieved relative to self-referenced goals and personal challenge. As such, there is no logical benefit in breaking the rules, as the goals then cease to be a personal challenge. If the individual does not hold a mastery perspective on success however, then breaking rules does not prevent the goal being reached. When high in task goal orientation, sportspersonship can be considered part of the internal framework and goal itself. However, all previous studies of this association between goal orientation and sportspersonship have used the same model, that proposed by Vallerand et al. (1996, 1997). In this study, the new compliant and principled model proposed in Study 3 is used.

As discussed in chapter 3, construct validity assesses the extent to which a theoretical model presents rationale relationships to other constructs. Specifically, construct validity has two subcomponents; convergent and discriminant validity. Convergent validity is the extent to which constructs that should theoretically and logically be related demonstrate such a relationship. Conversely, discriminant validity represents the extent to which a construct fails to relate to a logically unrelated construct or negatively relates to a construct to which it is theoretically opposed. In this study, measures of achievement motivation and moral behaviour were examined, and how these related to sportspersonship.

It was also important to re-examine the factor structure of the CAPSS. The collection of a new sample, independent from the previous samples provided an opportunity for that. To have confidence in the factorial validity of a measure, it should be able to demonstrate an appropriate model fit in samples collected independently to which it was first validated. This is important because at present while model fit was good in Study 3, there is no evidence at present to suggest that this fit was not sample-specific. Consequently, in this study, CFA and ESEM were again conducted on the CAPSS data.

To examine the relationship between CAPSS subscales and moral behaviour, the prosocial and antisocial behavior in sport scale (PABSS; Kavussanu & Boardley, 2009) was used. Specifically, it was hypothesised that higher levels of sportspersonship would be positively associated with prosocial behaviour and negatively associated with antisocial behaviour. Further, it was anticipated that the principled domain of sportspersonship, game perspective, would be more strongly related to prosocial behaviour than other aspects of sportspersonship. These relationships were anticipated to be predominantly evident in the opponent subscales of the PABSS, as the teammate subscales have less congruence with the CAPSS items. This is because the CAPSS is designed to be used in team and individual sports, thus does not refer to teammates, as the PABSS does. In establishing the construct validity of the PABBS, Kavussanu and Boardley used associations with empathy and goal orientation. Of the four subscales, only two significant relationships were found between moral behaviour and goal orientation. Prosocial behaviour towards teammates was positively related to task orientation and antisocial behaviour towards opponents was positively related to ego orientation.

### 5.4.1. Methods

#### 5.4.1.1. Participants

Participants were 156 men and 51 women, who were aged between 16 and 50 years (*M* age = 21.49 years, *SD* = 7.01), who were recruited from sports clubs in northern England. Respondents played football (*n* = 110), rugby (*n* = 32), netball (*n* = 25), basketball (*n* = 16), cricket (*n* = 12), and hockey (*n* = 12). On average, they had participated in their sport for 10.56 years (*SD* = 5.36) and competed at recreational (*n* = 101), club (*n* = 84), semi-professional (*n* = 17), and professional (*n* = 5) levels.

#### 5.4.1.2. Measures

***Compliant and Principled Sportspersonship.*** Compliant and principled sportspersonship was measured using the CAPSS model confirmed in Study 3. This included 24 items and five-subscales in total. These were compliance towards officials, towards rules, and not legitimising injurious acts as well as approach towards opponent and game perspective. Items are graded on a 4-point Likert-type scale anchored at 1 = *strongly disagree* and 4 = *strongly agree*.

***Goal Orientations.*** Goal orientations were assessed using the Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda & Nicholls, 1992). The TEOSQ is a 13-item questionnaire requiring participants to indicate when they feel successful in sport and physical activity. There are seven items relating to task orientation such as “something I learn makes me want to practice more” and “I learn a new skill by trying hard”. There are six ego orientation items including “The others can’t do as well as me” and “I score the most points or goals”. Responses are recorded on a 5-point Likert-type scale, anchored at 1 = *strongly disagree* and 5 = *strongly agree*.

***Prosocial and Antisocial Behaviour in Sport.*** Moral behaviour was assessed using the PABSS (Kavussanu & Boardley, 2009). The PABSS is a 20-item questionnaire that

requires participants to indicate how often they have engaged in each behaviour during the current competitive season. The scale includes four subscales; prosocial teammate (e.g., "Encouraged a teammate"), prosocial opponent (e.g., "Helped an injured opponent"), antisocial teammate (e.g., "Criticized a teammate") and antisocial opponent (e.g., "Physically intimidated an opponent"). Responses are recorded on a 5-point Likert-type scale anchored at 1 = *never* and 5 = *very often*.

#### 5.4.1.3. Procedure

Head coaches of nine sports clubs were contacted to request the participation of their athletes. All coaches agreed to allow collection data from their teams. As with data collection procedure in Study 2 and Study 3, participants were informed of the reason for data collection and assured that their responses would remain anonymous. Completion of the information and questionnaire pack (Appendix E) took approximately 15 minutes per participant.

#### 5.4.1.4. Data Analysis

It was important to undertake robust preliminary analyses, as this is the first time that the 24-item, five-factor version of CAPSS has been used on a sample independent from that where the model was refined and confirmed. Consequently, data was initially screened for missing values, outliers, and normality. Thorough reliability analyses examined factor correlations, composite reliability, Cronbach's alpha coefficient, average variance extracted, and interitem correlations. A confirmatory factor analysis and exploratory structural equation modelling were performed to examine the factorial validity in this sample. Finally, further ESEM analyses examined the potential higher-order model.

Construct validity was examined by assessing the convergent and discriminant validity of the scale. Specifically, the relationships with the theoretically hypothesised constructs of goal orientation and moral behaviour were presented. Significant correlations in the expected direction indicates support for convergent validity. The ability to distinguish

between stronger and weaker relationships indicates support for discriminant validity. Acknowledging the limitations of simple bivariate correlational analysis, the predictive capabilities of goal orientation and sportspersonship on moral behaviour were then examined by a series of hierarchical multiple regression analyses. Combined, this presents an overview of the construct validity of the CAPSS. Finally, planned comparisons for gender by and independent samples *t* test and a two-tailed correlational analysis for age examined the trends presented in Study 2 and Study 3.

### 5.4.2. Results

#### 5.4.2.1. Descriptive Statistics

Descriptive statistics for subscales and conflated higher-order factors can be found in Table 5.11. Less than 0.1% of data was missing and there was no evidence of significant outliers after examining Q-Q plots of each variable. For all subscales, there was evidence that the full range of scoring was used. Tests for normality indicated no issues with univariate skewness (< 2) or kurtosis (< 7). Table 5.12 displays the factor correlations. Correlations between subscales were moderate ($r$ = .22 to .55, $p$ < .01).

**Table 5.11.**
**TEOSQ, CAPSS and PABSS Descriptive Statistics**

| Factor | Mean | SD | Skew | Kurt |
|---|---|---|---|---|
| 1. Task | 4.02 | .51 | -1.06 | 2.22 |
| 2. Ego | 2.55 | .87 | .09 | -.97 |
| 3. Officials | 2.62 | .65 | -.00 | -.52 |
| 4. Rules | 2.84 | .55 | -.01 | -.17 |
| 5. Injurious Acts | 3.11 | .56 | -.48 | .03 |
| 6. Opponent | 3.18 | .46 | -.01 | -.51 |
| 7. Game Perspective | 2.89 | .54 | -.57 | .15 |
| 8. Prosocial Team | 4.28 | .63 | -.80 | .84 |
| 9. Prosocial Opponent | 3.45 | .87 | -.24 | -.21 |
| 10. Antisocial Team | 2.51 | .92 | .24 | -.52 |
| 11. Antisocial Opponent | 2.33 | .80 | .36 | -.26 |

### 5.4.2.2. Reliability Analysis

Composite reliability, alpha and AVE were slightly lower in this sample than the larger samples used in Study 2 and Study 3 for all subscales (Table 5.12). However, no reliability estimates were particularly troublesome and overall, the CAPSS subscales have retained good reliability across the three development and testing studies (Table 5.13).

**Table 5.12.**
**CAPSS Factor Correlations**

| Factor | AVE | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1. Officials | .46 | (.81) | | | | |
| 2. Rules | .32 | .51 | (.70) | | | |
| 3. Injurious Acts | .32 | .39 | .55 | (.66) | | |
| 4. Opponent | .32 | .22 | .27 | .32 | (.65) | |
| 5. Game Perspective | .38 | .43 | .43 | .36 | .38 | (.78) |
| Alpha | | .80 | .70 | .64 | .64 | .77 |

*Note.* For all correlations, $p < .01$. Composite reliability estimates are shown in parentheses.

**Table 5.13.**
**Interitem correlations matrices for each factor**

| | | | | | |
|---|---|---|---|---|---|
| **Compliant Officials, items *n* = 5, Mean IIC = .45** | | | | | |
| | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 |
| Item 2 | .55 | | | | |
| Item 3 | .47 | .54 | | | |
| Item 4 | .44 | .49 | .56 | | |
| Item 5 | .23 | .34 | .42 | .45 | |
| **Compliant Rules, items *n* = 5, Mean IIC = .32** | | | | | |
| Item 2 | .35 | | | | |
| Item 3 | .46 | .25 | | | |
| Item 4 | .31 | .32 | .39 | | |
| Item 5 | .28 | .33 | .29 | .23 | |
| **Injurious Acts, items *n* = 4, Mean IIC = .32** | | | | | |
| Item 2 | .43 | | | | |
| Item 3 | .38 | .41 | | | |
| Item 4 | .21 | .20 | .31 | | |
| **Opponent, items *n* = 4, Mean IIC = .32** | | | | | |
| Item 2 | .36 | | | | |
| Item 3 | .22 | .32 | | | |
| Item 4 | .37 | .30 | .36 | | |
| **Game Perspective, items *n* = 6, Mean IIC = .37** | | | | | |
| Item 2 | .28 | | | | |
| Item 3 | .31 | .37 | | | |
| Item 4 | .34 | .44 | .40 | | |
| Item 5 | .46 | .17 | .40 | .33 | |
| Item 6 | .25 | .30 | .48 | .48 | .51 |

*Note.* IIC = Interitem Correlation.

#### 5.4.2.3. Factorial Validity

To examine the factorial validity of CAPSS on a sample independent from the previous one, further CFA and ESEM analyses were conducted. This was deemed necessary, as the previous examination of factorial validity was still while the model was in development. Thus, further evidence that the fit obtained was not sample-specific was required. The CFA presented a reasonable model fit: $\chi^2(242) = 449.9$, $\chi^2/df = 1.86$, CFI = .819, TLI = .793, SRMR = .067, RMSEA = .066, though a little lower than in Study 3. It is worth noting that all factor loadings were moderate to strong (> .50). Like in Study 3, minor modifications to the model to improve fit were identified. In total, ten modifications were made, which improved model fit: $\chi^2(232) = 318.5$, $\chi^2/df = 1.37$, CFI = .925, TLI = .910, SRMR = .059, RMSEA = .041. ESEM yielded a similar fit to that found in Study 3: $\chi^2(166) = 208.43$, $\chi^2/df = 1.26$, CFI = .953, TLI = .917, SRMR = .034, RMSEA = .042. The standardised parameter estimates for the CFA and ESEM are presented in Table 5.14. The ESEM estimates largely support the model, as 19 of the 24 intended factor loadings are significant and significant cross-loadings are minimal. Further, $R^2$ values were all significant, suggesting that all items explain a significant amount of variance.

**Table 5.14.**
**Standardised parameter estimates for CFA and ESEM for 24-item CAPSS**

| Item | Factor 1 (Compliant Officials) | | Factor 2 (Compliant Rules) | | Factor 3 (Legitimacy of Injurious Acts) | | Factor 4 (Opponent) | | Factor 5 (Principled Game Perspective) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CFA | ESEM | CFA | ESEM | CFA | ESEM | CFA | ESEM | CFA | ESEM | CFA ($R^2$) | ESEM ($R^2$) |
| 1 | .61** | **.70**** | | -.06 | | -.08 | | .12 | | -.03 | .37** | .46** |
| 4 | .71** | **.76**** | | -.02 | | -.04 | | .03 | | -.01 | .26** | .34** |
| 6 | .76** | **.66**** | | .03 | | -.03 | | .00 | | .21 | .33** | .31** |
| 9 | .71** | **.60**** | | .01 | | .13 | | -.13 | | .10 | .50** | .56** |
| 22 | .54** | **.31**** | | .13 | | .04 | | .18 | | .15 | .38** | .43** |
| 3 | | .35** | .57** | **.33*** | | .00 | | -.17 | | .01 | .57** | .58** |
| 5 | | .17 | .58** | **.11** | | .20 | | -.02 | | .44* | .25** | .28** |
| 10 | | .32** | .52** | **.28*** | | .15 | | -.10 | | -.02 | .27** | .27** |
| 14 | | .12 | .51** | **.40*** | | .08 | | -.12 | | .08 | .50** | .46** |
| 18 | | .13 | .61** | **.46*** | | .03 | | .10 | | -.02 | .34** | .31** |
| 8 | | .05 | | .00 | .52** | **.46**** | | -.03 | | .15 | .43** | .45* |
| 12 | | -.02 | | -.01 | .60** | **.62**** | | .02 | | .31 | .36** | .52** |
| 17 | | .01 | | .28 | .67** | **.50**** | | .08 | | -.04 | .29** | .29** |
| 19 | | .32** | | .52* | .53** | **.09** | | .02 | | -.30 | .27** | .28** |
| 13 | | -.03 | | .03 | | .21 | .54** | **.43**** | | .13 | .26** | .28** |
| 15 | | .00 | | -.05 | | .14 | .51** | **.49**** | | .11 | .32** | .29** |
| 16 | | .01 | | .17 | | .12 | .56** | **.45**** | | -.07 | .45** | .45** |
| 20 | | .01 | | .32 | | -.05 | .66** | **.59**** | | -.01 | .26** | .31** |
| 2 | | .11 | | -.04 | | -.09 | | .25 | .51** | **.48**** | .28** | .46** |
| 7 | | .03 | | .08 | | .19 | | .09 | .50** | **.38*** | .44** | .52** |
| 11 | | -.06 | | .44* | | .01 | | -.08 | .66** | **.40*** | .49** | .56** |
| 21 | | .01 | | .27 | | .02 | | .24 | .70** | **.50**** | .29** | .29** |
| 22 | | -.07 | | .61** | | -.19 | | .08 | .56** | **.04** | .31** | .34** |
| 23 | | .01 | | .78** | | -.28 | | .00 | .67** | **.13** | .45** | .62** |

*Note.* Target loadings from CFA in the ESEM data are presented in bold.
*Statistically significant at $p < .05$, **$p < .01$.

### 5.4.2.4. Higher-order Modelling

As in Study 3, ESEM was used to examine a 2-factor model structure and determine whether there is a potential higher-order model. The model fit was again questionable: $\chi^2(229) = 518.8$, CFI = .739, TLI = .686, SRMR = .069, RMSEA = .080 (90% CI = .071-.089). The standardised parameter estimates (Table 5.15) presented a very similar pattern to those in Study 3. Specifically, the officials factor loaded separately from the rest of the model.

**Table 5.15.**
**Standardised parameter estimates for ESEM 2-factor model**

| Item | Factor 1 | Factor 2 |
|---|---|---|
| 1 | .63** | -.02 |
| 4 | .73** | -.03 |
| 6 | .68** | .10 |
| 9 | .68** | .05 |
| 22 | .33** | .31** |
| 3 | .42** | .15 |
| 5 | .35** | .26 |
| 10 | .09 | .39** |
| 14 | .15 | .40** |
| 18 | .09 | .31** |
| 8 | .06 | .46** |
| 12 | .03 | .48** |
| 17 | .29 | .32 |
| 19 | .00 | .48** |
| 13 | -.13 | .49** |
| 15 | -.15 | .44** |
| 16 | -.15 | .48** |
| 20 | -.16 | .61** |
| 2 | .02 | .44** |
| 7 | .03 | .49** |
| 11 | .06 | .55** |
| 21 | -.01 | .68** |
| 22 | -.08 | .54** |
| 23 | .04 | .58** |

*Statistically significant at $p < .05$; **$p < .01$

Little support has been received from this study and the previous study to confidently claim the existence of a higher-order model. The compliant and principled model therefore should be considered as measuring five dimensions of sportspersonship with no higher-order effects from hereon. As all factors moderately, positively correlate with each other and single-factor reliability estimates are strong however, an aggregated, total sportspersonship score, derived by summing all items appears appropriate.

### 5.4.2.5. Construct Validity

One of the purposes of Study 4 was to assess the construct validity of CAPSS by examining the convergent and discriminant validity by evaluating relationships with CAPSS subscales and theoretically associated concepts. A significant relationship between variables

supports this association but a correlation that is too high ($r > .90$) would suggest that the new dimension is redundant (Kline, 2005).

All CAPSS subscales with the exception of compliance towards rules ($r = .05$) significantly and positively correlated with task orientation (Table 5.16). These correlations were low to moderate ($r = .17$ to $.30$, $p < .01$). There was little significant relationship between sportspersonship and ego orientation, though there was a significant negative relationship between opponent and ego orientation ($r = -.17$, $p = < .05$). Sportspersonship subscales were then correlated with subscales from the PABSS. Game perspective was positively correlated with prosocial behaviour towards teammates ($r = .27$, $p < .01$), while compliance to rules, officials, and not legitimising injurious acts demonstrated a significant negative correlation with antisocial behaviour towards teammates. The reported behaviour towards opponents was particularly interesting. All CAPSS subscales correlated positively with prosocial behaviour towards an opponent ($r = .15$ to $.38$). Further, all CAPSS subscales significantly and negatively correlated with antisocial behaviour towards an opponent ($r = -.18$ to $-.55$). The low to moderate correlations in the expected direction provide some support for the convergent validity of CAPSS while ensuring that it is discriminant from a related measure of moral behaviour. However, it should be noted that although large correlations were not anticipated, the strength of the relationships obtained cannot be used as unequivocal support. Further evidence for discriminant validity is demonstrated by the moderate factor correlations displayed in Table 5.12 and the variation of correlations found in Table 5.16. The positive relationship between task orientation and some CAPSS subscales was different but there were also several similar coefficients. There was however much greater variation between CAPSS subscales and the prosocial and antisocial behaviour towards opponents subscales from PABSS. For example, the correlation between compliance towards officials and prosocial opponent ($r = .15$, $p < .05$) was considerably less than the correlation between

principled opponent and prosocial opponent ($r$ = .35, $p$ <.01). Similarly, game perspective did not significantly correlate with antisocial opponent ($r$ =.00, $p$ = *ns*) but the correlation between compliance to rules and antisocial opponent was significant ($r$ = -.55, $p$ < .01). These results support the construct validity of the CAPSS. It is worth noting however, that simple bivariate correlations present no predictive validity. Consequently, a series of hierarchical multiple linear regressions were examined.

**Table 5.16.**
**Factor correlations between CAPSS, TEOSQ and PABSS subscales**

| Factor | M | SD | Task | Ego | PT | PO | AT | AO |
|---|---|---|---|---|---|---|---|---|
| 1. Compliant Officials | 2.62 | .65 | .25** | .04 | .06 | .15* | -.24** | -.30** |
| 2. Compliant Rules | 2.81 | .57 | .05 | .10 | .12 | .25** | -.36** | -.55** |
| 3. Legitimacy of Injurious Acts | 3.11 | .56 | .17* | .02 | .05 | .24** | -.14* | -.48** |
| 4. Opponent | 3.18 | .44 | .30** | -.17* | .11 | .35** | -.08 | -.29** |
| 5. Game Perspective | 2.89 | .54 | .23** | -.10 | .27** | .38** | .00 | -.18* |

*Note.* PT = prosocial teammate, PO = prosocial opponent, AT = antisocial teammate, AO = antisocial opponent.
*Statistically significant at $p$ < .05, **$p$ < .01.

Hierarchical linear multiple regression analyses were used to examine the predictive capability of sportspersonship subscales on prosocial and antisocial behaviour. Specifically, prosocial teammate, prosocial opponent, antisocial teammate, and antisocial opponent were entered as dependent variables in a series of analyses. In each analysis, demographic data for gender, age and experience were entered at Step 1. At Step 2, task and ego orientation were entered before the CAPSS subscales were entered at Step 3. There were no signs of multicollinearity in any analyses (1/VIF < .1).

Results from the regression analyses for prosocial behaviours are presented in Table 5.17. With prosocial teammate entered as the dependent variable, significant standardised betas were evident for experience ($\beta$ = .19, $p$ < .05), task orientation ($\beta$ = .26, $p$ < .01), and sportspersonship towards opponent ($\beta$ = .29, $p$ < .01). Prosocial behaviour towards opponent presented a reasonably similar outcome, though experience and task orientation were not significant in this model. Gender was a significant predictor ($\beta$ = .24, $p$ < .01) and notably, so

was game perspective ($\beta$ = .28, $p$ < .01). It appears logical that the most principled aspects of sportspersonship should better predict prosocial behaviour, particularly towards opponent than the more compliant domains.

**Table 5.17.**
**Multiple linear hierarchical regression analyses for prosocial behaviours**

| Variable | B | $\beta$ | $R^2$ |
|---|---|---|---|
| Dependent variable: Prosocial teammate | | | |
| *Step 1* | | | .03 |
| Gender | .13 | .09 | |
| Age | -.00 | -.05 | |
| Experience | .02 | .19* | |
| *Step 2* | | | .10** |
| Task orientation | .32 | .26** | |
| Ego orientation | -.02 | -.03 | |
| *Step 3* | | | .17* |
| Compliance rules | -.04 | -.04 | |
| Compliance officials | -.03 | -.03 | |
| Legitimacy of injurious acts | -.05 | -.05 | |
| Opponent | .39 | .29** | |
| Game perspective | .04 | .04 | |
| Dependent variable: Prosocial opponent | | | |
| *Step 1* | | | .06* |
| Gender | .49 | .24** | |
| Age | .00 | .03 | |
| Experience | .01 | .06 | |
| *Step 2* | | | .04 |
| Task orientation | .22 | .12 | |
| Ego orientation | -.03 | -.03 | |
| *Step 3* | | | .16** |
| Compliance rules | -.13 | -.09 | |
| Compliance officials | -.11 | -.09 | |
| Legitimacy of injurious acts | .19 | .13 | |
| Opponent | .42 | .22** | |
| Game perspective | .44 | .28** | |

*Statistically significant at $p$ < .05, **$p$ < .01.

Results from the regression analyses for antisocial behaviours are presented in Table 5.18. When antisocial behaviour towards teammates was entered as the dependent variable, it was negatively predicted by gender ($\beta$ = -.28, $p$ < .01), with males more likely to demonstrate antisocial behaviour towards teammates, and age ($\beta$ = -.23, $p$ <.01) from the demographic variables. Of the sportspersonship variables, only compliance towards officials negatively predicted antisocial behaviour towards teammates ($\beta$ = -.18, $p$ < .05). When antisocial

opponent was entered as the dependent variable, gender ($\beta$ = -.38, $p$ < .01) presented a significant effect, again with males demonstrating more antisocial behaviour. A significant amount of variance was again explained by age ($\beta$ = -.29, $p$ < .01). Step 2 failed to explain a significant portion of variance, but a significant portion was explained by sportspersonship components. Specifically, compliance towards the rules ($\beta$ = -.37, $p$ < .01) and not legitimising injurious acts ($\beta$ = -.25, $p$ < .01) contributed towards this. While both of these are to be expected, it is surprising that the opponent subscale failed to explain any variance.

**Table 5.18.**
**Multiple linear hierarchical regression analyses for antisocial behaviours**

| **Variable** | **B** | ***β*** | ***R*²** |
|---|---|---|---|
| Dependent variable: Antisocial teammate | | | |
| *Step 1* | | | .20** |
| Gender | -.74 | -.28** | |
| Age | -.03 | -.23** | |
| Experience | .01 | .06 | |
| *Step 2* | | | .21 |
| Task orientation | -.12 | -.07 | |
| Ego orientation | .11 | .11 | |
| *Step 3* | | | .28** |
| Compliance rules | -23 | -.16 | |
| Compliance officials | -.22 | -.18* | |
| Legitimacy of injurious acts | -.01 | -.01 | |
| Opponent | .13 | .07 | |
| Game perspective | -.01 | -.01 | |
| Dependent variable: Antisocial opponent | | | |
| *Step 1* | | | .22** |
| Gender | -.74 | -.38** | |
| Age | -.03 | -.29** | |
| Experience | .01 | .05 | |
| *Step 2* | | | .22 |
| Task orientation | .00 | .00 | |
| Ego orientation | -.06 | -.07 | |
| *Step 3* | | | .44** |
| Compliance rules | -.53 | -.37** | |
| Compliance officials | .02 | .02 | |
| Legitimacy of injurious acts | -.36 | -.25** | |
| Opponent | .08 | .04 | |
| Game perspective | .06 | .04 | |

*Statistically significant at $p$ < .05, **$p$ < .01.

### 5.4.2.6. Gender, Age and Sportspersonship

Following the findings on gender, age, sport type and sportspersonship in Study 2 and Study 3, a similar analysis was conducted to examine the consistency of these findings. As all participants in this sample were from team sports, only gender and age were considered.

Gender effects were examined using an independent samples t-test, for which the descriptive statistics are displayed in Table 5.20. In-keeping with previous research (e.g., Murcia, Gimeno, & Coll, 2008), males demonstrated a significantly higher ego orientation than females ($t(205) = 3.57$, $p < .01$, $d = .58$). Further, following the trends from Study 2 and Study 3, females scored significantly higher ($p < .01$) in sportspersonship in all subscales. Females also reported more prosocial behaviour towards opponents ($t(205) = -2.61$, $p < .05$, $d = -.42$), and less antisocial behaviour towards teammates ($t(205) = 4.53$, $p < .01$, $d = .74$) and opponents ($t(205) = 5.35$, $p < .01$, $d = .86$).

**Table 5.19.**
**Mean and standard deviation data for gender**

| Variable | Male | Female |
|---|---|---|
| Task | 4.00 (.50) | 4.08 (.54) |
| Ego | 2.67 (.87) | 2.18 (.79)** |
| Compliant Officials | 2.54 (.65) | 2.88 (.59)** |
| Compliant Rules | 2.76 (.53) | 3.10 (.54)** |
| Injurious Acts | 3.05 (.54) | 3.31 (.57)** |
| Game Perspective | 2.81 (.55) | 3.13 (.44)** |
| Opponent | 3.13 (.46) | 3.34 (.45)** |
| Prosocial Team | 4.28 (.61) | 4.26 (.69) |
| Prosocial Opponent | 3.37 (.84) | 3.73 (.90)* |
| Antisocial Team | 2.66 (.84) | 2.02 (.96)** |
| Antisocial Opponent | 2.49 (.78) | 1.84 (.66)** |

*Statistically significant at $p < .05$, **$p < .01$.

Like in Study 2 and Study 3, age revealed small but significant positive correlations with compliant officials ($r = .18$, $p < .05$) and injurious acts ($r = .21$, $p < .05$). A similar relationship was found for age and compliance towards rules ($r = .15$, $p < .05$). There were no significant relationships between goal orientation and age, though there was a significant negative correlation between age and antisocial behaviour towards teammates ($r = -.19$, $p <$

.05) and towards opponents ($r$ = -.25, $p$ < .01). There were no significant relationships between experience and sportspersonship. In-keeping with the findings from Study 2 and Study 3, the results again identified females as significantly higher in sportspersonship than males. Also, there were again significant correlations between age and sportspersonship.

### 5.4.3. Discussion

The purpose of this study was to (a) examine the construct validity of the compliant and principled sportspersonship scale by association with theoretically associated measures and (b) examine the effects of achievement goal orientation on sportspersonship and moral behaviour. The study also provided further investigation into the factorial validity of CAPSS by examining the model fit on an independent sample. Model fit was acceptable considering the relatively small sample size, and examination of the ESEM factor loadings provided good support for the composition of the scale. Reliability estimates were generally a little lower than in Study 2 and Study 3 but the overall reliability picture, supported by frequent gender and age comparisons, provides fair support for the consistency of the scale. Such consistent findings across a variety of samples support the practical use of the CAPSS as a tool capable of discriminating between respondent sportspersonship orientations. The further support of the factor structure in a third independent sample reflects a fairly robust model that, while is still in development and has room to evolve and improve, is worthy of use in future research projects.

There was some support for construct validity, as all but one subscale of CAPSS positively correlated with task orientation and relationships with prosocial and antisocial behaviour, particularly towards opponent, were in the expected direction. The regression analysis further support construct validity, as the variance explained by sportspersonship, particularly on moral behaviour towards opponents, was significant and in the expected direction.

This study has provided important support for the construct validity of CAPSS but it does have limitations. Firstly, the sample was restricted to team sports because only they can be assessed using the PABSS. Secondly, it is worth considering that this study only selected two associated measures. There are many other potentially-related concepts, such as moral disengagement that could be used to further investigate the construct validity. Moreover, a different type of psychometric assessment, such as the use of dilemmas or scenarios could present interesting insight. Thirdly, it is worth noting that correlational analysis does not establish causality, and measurement error cannot be calculated. These two issues could be overcome with structural equation modelling. However, structural equation modelling requires large sample sizes, which must be significantly greater than the number of parameters to be estimated (Rocha & Chelladurai, 2012). The same limitations also apply for the CFA and ESEM analyses. Finally, the low to moderate correlations observed between sportspersonship, goal orientation and reported moral behaviour were relatively small. Consequently, further evidence of expected associations with related constructs is required before strong claims of construct validity can be made.

In summary, this study provides further support for the factorial validity of the CAPSS and presents initial support for the construct validity. Having established the content, factorial, and construct validity of CAPSS, it is recommended that the test-retest stability of the scale is examined, and the criterion validity of CAPSS is scrutinised.

## 5.5. Study 5: Mental Toughness, Personality, and Sportspersonship

Principled sportspersonship, like Kohlberg's (1976) post-conventional morality identifies clear ethical principles. To realise an ethical perspective in behaviour requires an individual to have the commitment, self-control and confidence to stick those principles. These are three aspects of mental toughness (Clough, Earle, & Sewell, 2002). While it would be quite a leap to propose a positive relationship between these concepts, the lack of a

negative relationship would support the notion that a performer can be mentally tough and sporting. One does not have to be sacrificed for the other.

To further examine the construct validity of CAPSS, exploring the relationships with personality and dark personality is useful. There is no literature available of the relationship between sportspersonship and personality. As such, personality correlates with organisational citizenship behaviour (OCB) are considered. OCB has been subjected to a wealth of empirical research in occupational psychology since Organ (1998) coined the phrase and defined it as "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization" (p. 4). The commonly model of OCB contains seven types of citizenship behaviour; helping behaviour, sportsmanship, organisational loyalty, organisational compliance, individual initiative, civic virtue, and self-development. The definition of sportsmanship within this model is very much one of compliance. Organ (1990, p.96) defined this as "a willingness to tolerate the inevitable inconveniences and impositions of work without complaining." Although some researchers (e.g., Podsakoff, McKenzie, Paine, & Bachrach, 2000) consider this definition as too narrow, their own interpretation is largely about maintaining a positive attitude even when things do not go the way the individual would like. The definition of sportsmanship within the context of OCB theory is clearly much narrower than sportspersonship is considered here, but there are some correlates with personality. For example, it has been positively associated with conscientiousness, extraversion, agreeableness, and negatively correlated with neuroticism (Singh & Singh, 2009; Kottke, 2009). It is worth noting however, that these associations are generally fairly low (around .20).

As the compliant and principled model of sportspersonship is developed from morality theory, it seems logical that dark personality traits of Machiavellianism and

narcissism. The purpose of this study was to examine these hypotheses and further test the construct validity of CAPSS.

### 5.5.1. Methods

#### 5.5.1.1. Participants

One-hundred and two student participants (male *n* = 72, female *n* = 30) aged 18 to 55 (*M* = 22.68, *SD* = 7.12) were recruited to take part in the study. All students were studying undergraduate degree courses in a UK-based higher education institution within a sport department.

#### 5.5.1.2. Measures

***Big 5 Personality.*** The Ten Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003) contains ten items to assess the big five personality traits (emotional stability, extraversion, openness, agreeableness and conscientiousness; Costa & McRae, 1992). Each trait contains two items that participants indicate the extent to which they agree or disagree on a seven-point Likert-type scale anchored at 1 = *Strongly Disagree* and 7 = *Strongly Agree*.

***Machiavellianism.*** Machiavellianism was assessed using the Machiavellianism Mach–IV questionnaire (MACH-IV; Christie & Geis, 1970). The Mach-IV scale contains 20 items that relate to cynical attitude to human nature, the use of deceit in interpersonal relationships and a lack of concern for conventional morality. A five-point Likert-type scale is used to indicate the participants response from 1 = *Strongly Disagree* to 5 = *Strongly Agree*.

***Narcissism***. Narcissism was assessed using the Narcissism Personality Inventory 16 (NPI-16; Ames, Rose, & Anderson, 2006) which is a self-reported measure of trait narcissism. The NPI-16 scale contains 16 items that are formed from the Narcissistic Personality Inventory 40 (NPI-40) (Raskin and Terry, 1988). The inventory requires participants to highlight the best fitting statement from a choice of 2 per question, for

example: "*I really like to be the centre of attention*" or "*It makes me uncomfortable to be the centre of attention*", "*I usually get the respect I deserve*" or "*I insist upon getting the respect I deserve*", and "*I am much like everybody else*" or "*I am an extraordinary person*". For each question, one response indicates trait narcissism whereas the other does not.

***Sportspersonship***. Compliant and principled sportspersonship was assessed using the 24-item, five-factor CAPSS developed and validated throughout this thesis. This included subscales on respect for rules, respect for officials, the legitimacy of injurious acts, respect for opponent, and game perspective. Responses were indicated on a four-point Likert-type scale anchored by 1 = *Strongly Disagree* and 4 = *Strongly Agree*.

#### 5.5.1.3. Procedure

Following ethical clearance from a university ethics committee, 136 participants were recruited in lectures and were provided with a questionnaire pack. One-hundred and two responded, representing a response rate of 75.56%. The questionnaire pack took approximately 20 minutes to complete.

#### 5.5.1.4. Data Analysis

Data was initially screened for outliers, normality, and internal consistency. Associations between variables were assessed using Pearson's bivariate correlations. Finally, a hierarchical multiple regression analysis was used to examine the predictive effects of personality and mental toughness on sportspersonship.

### 5.5.2. Results

Preliminary screening examined Q-Q plots to screen for outliers and found no issues. There were no issues with skewness (< 2) or kurtosis (< 7). All sportspersonship subscales demonstrated good internal consistency. Some issues were evident within mental toughness subscales and alpha levels were very low for several TIPI scales. However, this is not

necessary representative of any reliability issues, as there are only two items per subscale. A summary of descriptive statistics is presented in Table 5.20.

**Table 5.20.**
**Descriptive statistics, internal consistency, and normality estimates for mental toughness, personality, and sportspersonship variables**

| Variable | α | Min | Max | Mean | SD | Skew | Kurt |
|---|---|---|---|---|---|---|---|
| Challenge | .55 | 2.75 | 4.88 | 3.76 | .42 | .08 | -.18 |
| Commitment | .76 | 1.73 | 4.73 | 3.56 | .52 | -.49 | .88 |
| Control Emotion | .57 | 1.29 | 4.71 | 3.17 | .61 | -.05 | .23 |
| Control Life | .61 | 2.29 | 4.71 | 3.58 | .49 | .14 | -.06 |
| Confidence Abilities | .74 | 2.11 | 4.67 | 3.48 | .56 | -.21 | -.46 |
| Confidence Interpersonal | .57 | 2.00 | 5.00 | 3.74 | .57 | -.16 | .12 |
| Mental Toughness | .88 | 2.45 | 4.34 | 3.56 | .38 | -.26 | .13 |
| Extraversion | .55 | 2.00 | 14.00 | 9.53 | 2.63 | -.62 | .39 |
| Agreeableness | .23 | 2.00 | 14.00 | 8.88 | 2.06 | -.10 | .89 |
| Conscientiousness | .53 | 2.00 | 14.00 | 10.53 | 2.31 | -.72 | .70 |
| Emotional Stability | .72 | 2.00 | 14.00 | 13.94 | 1.62 | -.66 | -.43 |
| Openness | .29 | 5.00 | 14.00 | 10.38 | 2.03 | -.16 | -.50 |
| Mach | .73 | 35.00 | 89.00 | 55.34 | 9.28 | .57 | .96 |
| Narcissism | .74 | 0.00 | 12.00 | 4.11 | 3.20 | .56 | -.56 |
| Officials | .89 | 0.00 | 4.00 | 2.46 | .95 | -.37 | .06 |
| Rules | .89 | 0.00 | 4.00 | 2.57 | .92 | -.54 | .24 |
| LIA | .81 | 0.00 | 4.00 | 2.77 | .97 | -1.08 | 1.26 |
| Opponent | .72 | 0.00 | 4.00 | 3.02 | .83 | -1.82 | 4.23 |
| Game Perspective | .88 | 0.00 | 4.00 | 2.67 | .89 | -.97 | 1.32 |
| Sportspersonship | .94 | 0.00 | 20.00 | 13.48 | 3.99 | -1.32 | 3.02 |

Correlational analysis results are presented in Table 5.21. Correlations presented a significant positive relationship between sportspersonship and agreeableness ($r$ = .23, $p$ < .05). Specifically, rules ($r$ = .22, $p$ < .05), legitimacy of injurious acts ($r$ = .21, $p$ < .01), and game perspective ($r$ = .29, $p$ < .01) were all positively associated with agreeableness. Conscientiousness was also positively associated with sportspersonship ($r$ = .26, $p$ < .01). This relationship was also evident between conscientiousness and rules ($r$ = .28, $p$ <. 01), legitimacy of injurious acts ($r$ = .27, $p$ < .01), and game perspective ($r$ = .24, $p$ < .05). Machiavellianism was negatively associated with all aspects of sportspersonship ($r$ = -.20 to -.32, $p$ < .05). There was no overall relationship between mental toughness and sportspersonship ($r$ = .11, $p$ = *ns*). At a subscale level there was a positive relationship

between respect for opponent and challenge ($r$ = .26, $p$ < .01). There were also significant positive relationships between commitment and rules ($r$ = .27, $p$ < .01), legitimacy of injurious acts ($r$ = .22, $p$ < .05), opponent ($r$ = .23, $p$ < .05), and overall sportspersonship ($r$ = .23, $p$ < .05).

**Table 5.21.**
**Pearson's bivariate correlation coefficients between sportspersonship and personality and mental toughness**

| Variable | Off | Rules | LIA | Opp | GP | Spship |
|---|---|---|---|---|---|---|
| Extraversion | -.18 | -.12 | -.07 | -.02 | -.11 | -.12 |
| Agreeableness | .18 | .22* | .21* | .10 | .29** | .23* |
| Conscientiousness | .17 | .28** | .27** | .17 | .24* | .26** |
| Emotional Stability | -.19 | -.14 | -.11 | -.06 | -.19 | -.16 |
| Openness | .05 | .03 | -.06 | .02 | .04 | .02 |
| Machiavellianism | -.21* | -.32** | -.29** | -.20* | -.32** | -.31** |
| Narcissism | -.15 | -.08 | -.11 | .04 | -.09 | -.09 |
| Challenge | .09 | .15 | .14 | .26** | .17 | .18 |
| Commitment | .15 | .27** | .22* | .23* | .15 | .23 |
| Control Emotion | -.04 | .03 | .04 | -.05 | -.10 | -.02 |
| Control Life | .00 | .14 | .07 | .16 | -.01 | .08 |
| Confidence Abilities | -.12 | -.08 | -.09 | -.06 | -.15 | -.12 |
| Confidence Interpersonal | -.13 | -.03 | -.03 | .13 | -.06 | -.03 |
| Mental Toughness | .02 | .14 | .11 | .18 | .04 | .11 |

*Note.* Off = officials, LIA = legitimacy of injurious acts, Opp = opponent, GP = game perspective, Spship = sportspersonship.
*Statistically significant at $p$ < .05, **$p$ < .01.

To determine if sportspersonship was predicted by personality or mental toughness variables, a hierarchical multiple regression analysis was conducted. In step one, demographic variables of age, gender, sport type (team or individual), and highest level of participation were entered. Overall mental toughness was entered at step two, and personality variables were entered at step three. Only step one explained a significant amount of the variance in sportspersonship ($\Delta R^2$ = .16, $p$ < .01). No individual variables were significant in the model at any step (Table 5.22).

**Table 5.22.**
**Hierarchical multiple regression with sportspersonship as dependent variable**

| | B | *β* | *t* | $R^2$ |
|---|---|---|---|---|
| **Step 1** | | | | |
| Age | .09 | .16 | 1.59 | .16** |
| Sex | 1.48 | .17 | 1.78 | |
| Sport type | 1.84 | .23 | 2.26 | |
| Highest level played | -.40 | -.11 | -1.13 | |
| **Step 2** | | | | |
| Mental toughness | 1.07 | .10 | 1.04 | .17 |
| **Step 3** | | | | |
| Extraversion | -.11 | -.07 | -.65 | .25 |
| Agreeableness | .26 | .13 | 1.26 | |
| Conscientiousness | .09 | 0.5 | .44 | |
| Emotional stability | -.37 | -.15 | -1.31 | |
| Openness | -.18 | -.09 | -.85 | |
| Machiavellianism | -.06 | -.14 | -1.20 | |
| Narcissism | .13 | .10 | .90 | |

*Statistically significant at $p < .05$, **$p < .01$.

### 5.5.3. Discussion

The purpose of this study was to examine empirical associations between personality, mental toughness, and sportspersonship. The findings suggest that sportspersonship is positively associated with agreeableness and conscientiousness. In terms of dark personality, sportspersonship is negatively associated with Machiavellianism. These associations make theoretically sense and add further support for the construct validity of the CAPSS. It also provides the first indication of the relationships between sportspersonship and personality.

Notably, there was very little difference between mental toughness and sportspersonship. Indeed, any significant relationships were positive relationships between the commitment aspect of mental toughness and several components of sportspersonship. Overall, these results indicate that mental toughness and sportspersonship are mutually exclusive concepts. The implication from this is that one can be high in both mental toughness and sportspersonship. This is an important finding because it demonstrates that those with high levels of sportspersonship are not sacrificing their toughness.

Having a principled perspective requires a logical, rather than emotional understanding of a situation. Logical analysis is commonly considered part of task-oriented coping (e.g., Gaudreau & Blondin, 2002). Further, it is considered a problem solving approach to coping with stress (Lazarus, 1999). Task-oriented and problem-focused coping have consistently been shown to be effective strategies. An individual who is able to remove themselves, and their emotion, from a situation and make a principled decision is much more likely to be able to employ these type of strategies. While hypothetical at present, if these associations with positive psychological attributes are existent, there will be firm support for the benefits of sportspersonship, based on the compliant and principled model.

During initial development of the model, it was hoped that principled sportspersonship would enable a disassociation with poor sportspersonship and success in sport. This is a belief held by many that could be damaging to encouraging sporting play. To use a colloquialism, nice guys (and girls) finish last. To determine whether the new model has achieved this disassociation, a series of planned comparisons between skill level and sportspersonship using Vallerand et al.'s (1997) multidimensional sportspersonship orientation scale (MSOS) and the compliant and principled sportspersonship scale (CAPSS) were conducted on samples collected for Study 2 and Study 4 respectively. The sample from Study 2, who completed the MSOS contained 323 performers, from recreational ($n$ = 139), club ($n$ = 145), and semi-professional or professional ($n$ = 28). Eleven did not specify a skill level. Study 4 contained a sample of 502, who completed the CAPSS. This included 228 recreational performers, 213 club-level performers, and 55 semi-professional or professional performers. Six did not specify their skill level. Descriptive statistics from these samples can be found in Table 5.23.

**Table 5.23.**
**Mean and standard deviation sportspersonship data by skill level**

| | Recreational | Club | (Semi-) Professional |
|---|---|---|---|
| *MSOS* | | | |
| Full Commitment | 3.69 (.90) | 3.87 (.77) | 3.94 (.70) |
| Rules and Officials | 3.99 (.63) | 4.17 (.58)* | 4.39 (.78)** |
| Social Conventions | 3.61 (.74) | 3.69 (.81) | 3.66 (.80) |
| Opponent | 2.88 (.89) | 2.85 (.84) | 2.72 (1.05) |
| Negative Approach | 2.59 (.66) | 2.79 (.59)** | 2.92 (.69)* |
| *CAPSS* | | | |
| Officials | 2.65 (.69) | 2.71 (.72) | 2.54 (.78) |
| Rules | 2.76 (.57) | 2.73 (.60) | 2.66 (.72) |
| Injurious Acts | 3.15 (.62) | 3.00 (.68)* | 2.82 (.68)** |
| Opponent | 3.01 (.54) | 3.12 (.58) | 3.03 (.65) |
| Game Perspective | 2.77 (.61) | 2.69 (.53) | 2.57 (.63) |

*Statistically significant at $p < .05$, **$p < .01$

One-way ANOVA from the MSOS data revealed two significant group differences. These were with regards to respect for rules and officials ($F(2, 309) = 5.91$, $p < .01$, $d = -.29$) and negative approach towards sportspersonship ($F(2, 309) = 5.49$, $p < .01$, $d = -.33$). Specifically, planned contrasts revealed that recreational performers were less likely to respect the rules and officials than club performers ($t(282) = 2.51$, $p < .05$, $d = .30$) and professional performers ($t(165) = 2.87$, $p < .01$, $d = .60$). In contrast, recreational performers reported a lower negative approach to sportspersonship than club ($t(282) = -2.79$, $p < .01$, $d = -.33$) and professional performers ($t(165) = -2.43$, $p < .05$, $d = -.50$). The one-way ANOVA from the CAPSS data revealed only one significant effect, which was that recreational performers were significantly ($F(2, 493) = 7.15$, $p < .01$, $d = .24$) more prepared to legitimise injurious acts than club ($t(439) = 2.56$, $p < .05$, $d = .24$) and professional performers ($t(281) = 3.56$, $p < .001$, $d = .54$). To investigate a potential association between sportspersonship and performance, the data from Study 6, a dilemma, was revisited. Total points scored did not significantly correlate with any aspect of sportspersonship or overall sportspersonship. Rather than have a detrimental effect, all correlations were small positive coefficients ($r = .19$ to .25).

The data collected in the course of this programme of research provides no support for the notion that nice guys, or girls, finish last. It is worth identifying of course that there appears to be some differences between gender and sports, which have not been considered in this analysis. Nevertheless, there is no evidence to believe that low levels of sportspersonship are beneficial to the individual in any way. Consequently, there is a rationale for promoting the development of sportspersonship.

## 5.6. General Discussion

The aim of this chapter was to develop and gain initial content and construct validity of the CAPSS. After item generation, EFA yielded a 33-item, 6-factor model. This was tested by an independent sample and reduced to a 24-item, 5-factor model. As such, sportspersonship is defined here as compliance towards rules, respect for officials, not legitimising injurious acts, respect for the opponent and the maintenance of game perspective. While the higher-order model was not supported, this model is the first to include a principled component in the way of game perspective. Clearly, it is also informed by principled approaches to morality, such as those explained by Kohlberg (1976).

It is interesting to note that respect for officials appears distinct from the other dimensions of sportspersonship. This could potentially be related to relations of power between officials and performers, as approaches towards opponent and the legitimacy of injurious acts was separate when examining the potential existence of a higher-order model. This is an interesting avenue for future research. The clear separation of rules and officials from Vallerand et al.'s (1996, 1997) model, as recommended by Treasure and Roberts (2001) was supported in both studies presented in this chapter.

The findings from Studies 3, 4 and 5 are encouraging and provide a new measure suitable for future research. However, there are still several limitations and uncertainties that require further examination. Firstly, the samples used are restricted to the UK. To account for

potential cultural differences, future research outside of the UK could examine the psychometric properties of CAPSS. Secondly, despite several items in the initial scale development referring to phrases like game value, integrity, and etiquette, analyses were unable to identify a dimension of sportspersonship whereby the individual values the good of the sport. Essentially, a more principled version of Vallerand et al.'s (1996, 1997) respect for social convention was anticipated. It seems logical that this is indeed an important part of sportspersonship but has not been found in the model presently.

The validation of a measure should be seen as a continuing process. Consequently, the CAPSS is presented here, not as a perfect model, but an important development in our ability to define and measure sportspersonship. Future research should examine the test-retest stability, and the criterion validity of the scale. To do so, studies examining the predictive ability of the CAPSS on moral behaviour are encouraged. It would also be of interest to examine more closely how moral reasoning, perhaps through moral dilemmas, relates to the concept of principled sportspersonship. One important unanswered question remains about the benefits of being high in sportspersonship. This would be a very interesting avenue of research using the compliant and principled model. While behaviours resultant of a principled approach may in themselves be detrimental to performance, to be able to make value judgments and be prepared to follow through on them when many would not is a sign of mental strength and requires many positive psychological attributes. Further research should further investigate the potential benefits developing a principled approach could have on areas like mental toughness, emotional intelligence, coping, and leadership.

In sum, this chapter presents the development of a five-factor model and measure of compliant and principled sportspersonship, and initial evidence of its validity. This model was largely informed by the social-psychological approach of Vallerand and colleagues (1996, 1997) but considered the earlier moral development research by Kohlberg (1976), Rest

et al. (2000) and Haan et al. (1985). Overall, the scale represents a useful tool for researchers wishing to investigate sportspersonship. The final 24-item version of the CAPSS can be found in appendix D. The construct validity of this scale has been supported by the positive associations between task orientation and sportspersonship. Further, sportspersonship was positively associated with prosocial behaviour and negatively associated with antisocial behaviour.

# Chapter 6:
# Testing the Compliant and Principled Sportspersonship Concept

## 6.1. Summary

The previous chapter provided support for the factorial and construct validity of the compliant and principled sportspersonship scale. Study 4 also examined the empirical links between achievement motivation, sportspersonship, and moral behaviour. The purpose of this chapter is continue to examine the validity of the CAPSS by examining the test-retest stability and the criterion-related validity. The secondary purpose was to explore the effects of sportspersonship on moral behaviour in competitive and non-competitive situations.

The first part of the chapter contains Study 6, which examines the test-retest stability of CAPSS after 84 participants completed the measure seven days apart. The CAPSS requires a certain amount of stability if it is to satisfactorily assess sportspersonship. Without stability, it would not be possible to detect changes in sportspersonship and the measure would be purely a state inventory. Therefore, the test-retest stability is examined and supported in Study 6.

The bulk of this chapter investigates the criterion validity of CAPSS and the effects of sportspersonship on moral behaviour. Specifically, this is achieved by two experimental studies designed to assess how well CAPSS responses predict behaviour. The first study, Study 7, requires participants to play the prisoner's dilemma game originally proposed by Flood and Dresher (1950, cited in Maynard-Smith, 1982). Participants are required to *cooperate* or *defect* against an opponent. In this study, participants played the game under an accumulate condition and a competitive condition to examine the extent to which CAPSS scores were able to predict behaviour. In the second criterion validity study, Study 8, participants were asked to complete an online maze game and record their own scores. After completing the task, participant scores were verified against screen recording software that recorded actual data. This enabled comparison between CAPSS scores and honesty.

## 6.2. Introduction

Examining the stability of a scale is not merely a test of reliability. It is a useful way of identifying the extent to which a concept can change over a brief period of time. The notion of sportspersonship relies on moral principles. As such, one should expect this to be relatively stable. The extent to which it is stable can be examined by a test-retest design. If a concept should be theoretically stable, high stability between two time points can then be used as an indicator of reliability. The notion of validity can be complex. The different components of validity were highlighted earlier in this thesis. In short, there are three main types; content-related, construct-related validity, and criterion-related validity. Having addressed content and construct validity, it was necessary to investigate criterion-related validity. If a measure is to be of use, it must demonstrate predictive power. A brief search of psychology databases identifies that criterion validity studies on psychometric scales are carried out regularly. It is somewhat surprising therefore, that such studies are seldom reported in sport psychology. Indeed, there are no peer-reviewed studies on the predictive validity of measures such as the MSOS (Vallerand et al., 1997), MDSS (Boardley & Kavussanu, 2007), or the PABSS (Kavussanu & Boardley, 2010). This is remiss of researchers as ultimately, responses must correlate with observed behaviours to have strong confidence in a measure. The purpose of this chapter was to explore the test-retest stability and the criterion-related validity of the CAPSS.

## 6.3. Test-Retest Stability

An assessment of stability is necessary for all psychometric tools, as it allows researchers to examine the extent to which test-retest scores are reproducible, regardless of experimental conditions. The importance of this is magnified in what may be described as a dispositional measure. Researchers have explained (e.g., Anastasi & Urbina, 1998; Kline, 1993) that examining test-retest stability is a vital component of the validation process. Test-

retest stability refers to “the concept that constructs retain a degree of resistance to change over time” (Lane et al., 2005, p .339).

## 6.4. Study 6: The Test-Retest Stability of the Compliant and Principled Sportspersonship Scale

Despite the importance of test-retest stability, in the current literature, it is often neglected. Further, one could argue that the examples of assessing stability are lacking robustness in their analysis. In the development and validation of the multidimensional sportspersonship orientations scale Vallerand et al. (1997) did examine the temporal stability. The authors believed that because the scale was contextual, in that it is specific to sport, and their retest took place five weeks after the initial test, correlation coefficients of approximately .60 were expected. Indeed, correlations among subscales ranged from .56 to .76. However, this simple, factor-level correlation was all of the analysis conducted. As discussed in chapter 3, several researchers (e.g., Lane et al., 2005; Nevill et al., 2001) have stressed the importance of examining item-level stability, which can sometimes be masked by such simple subscale-level analysis. The same authors also recommend using a range of correlation coefficients including kappa, and intraclass correlation coefficients (ICC) as well as paired samples *t*-tests and calculating the proportion of responses ±1 at item level. More recently, Kavussanu, Stanger, and Boardley (2013) conducted a meticulous investigation of the test-retest stability of the prosocial and antisocial behavior in sport scale. This included subscale-level analysis using ICC and a MANOVA. Further, item-level analysis used the recommendation of Lane et al. and Nevill et al., examining the proportion of agreement ±1. They also calculated a median sign test difference for paired comparisons. Kavussanu et al. reported ICC at subscale level between .83 and .92. Only three of the 20 items displayed a significant difference, supporting the test-retest stability of the scale. The authors did not present any correlational analysis at item level.

A final consideration for examining test-retest stability is the time between tests. Kavussanu et al. (2013), following the advice of Lane et al. (2005) and Nevill et al. (2001), used a one-week time gap to increase the chance that any change is a result of measurement variance (error) and not true variance. There is little reason to argue that a period of greater than one to two weeks is necessary for such a study, as the participants will be unable to remember their exact responses in this time.

### 6.4.1. Methods

#### 6.4.1.1. Participants

An initial sample of 136 participants (male $n$ = 85, female $n$ = 51) aged 14-60 ($M$ = 22.88, $SD$ = 7.99) were recruited to take part in the study. The sample included a wide range of sports, which were performed at recreational ($n$ = 45), club ($n$ = 80), semi-professional/national ($n$ = 9), and professional/international ($n$ = 2) level. On average, participants had been playing their sport for 11.71 years ($SD$ = 7.13).

#### 6.4.1.2. Measures

***Compliant and Principled Sportspersonship.*** Compliant and principled sportspersonship was assessed using the CAPSS developed and tested in Study 2, Study 3 and Study 4. The 24-item, 5-factor measure requires responses on a 4-point Likert-type scales anchored at 1 = *strongly disagree* and 4 = *strongly agree*.

#### 6.4.1.3. Procedure

Ethical approval had been granted from a UK higher education institution. Invitations were sent to complete the CAPSS electronically. After completion, an email was sent to invite each participate to complete the CAPSS again seven days later. The primary decision behind the time between test and retest was to alleviate any concern that participants could remember their scores previously. By allowing too long, participant attrition is a greater risk. A study using health status self-report measures by Merx, Menezes, Horvitz, Jones, and

Warren (2003) found no difference in stability coefficients if the retest was conducted two days or two weeks apart, so any point within this time frame appeared appropriate. In this version, a final question was added to the scale stating "Has anything happened to you in the last 7 days that has changed your attitudes towards sportsmanship?" A total of three reminders were sent every three days after the seventh day.

Fifty-two participants failed to respond to reminders, leaving a sample of 84 who completed the retest, meaning 61.76% of those invited completed both tests. The final sample were aged from 16 to 60 ($M$ = 23.27, $SD$ = 8.93) including males ($n$ = 54) and females ($n$ = 30) and were recruited from fifteen sports with a range of experience ($M$ = 12.20, $SD$ = 7.81). The skill level included 30 recreational performers, 46 club-level, six semi-professional/national, and two professional/international standard competitors.

#### 6.4.1.4. Data Analysis

Preliminary analysis first examined participant responses to the question on changing attitudes. Any significant responses would exclude the respondent from the main analysis. Q-Q plots were used to test for outliers and univariate normality was evaluated.

To examine stability, item-level and subscale-level correlations were conducted. This included Pearson's product-moment correlations ($r$), kappa, and intraclass correlations (ICC). Paired sample t-tests were conducted to test for no difference. Following the recommendations of Nevill et al. (2001) and Lane et al. (2005), the percentage of responses within (±1) for each item were calculated. All analyses was conducted at both item level and subscale level.

### 6.4.2. Results

Preliminary analysis did not exclude any respondents on the basis of the additional question regarding changing attitudes, or have any issues with outliers. Similarly, no issues with skewness (< 2) or kurtosis (< 3) were found with any items or subscales.

Item level relationships are presented in Table 6.1, while subscale level relationships are in Table 6.2. All items and subscales demonstrated a significant ($p < .001$) relationship between test and retest in all correlations. Indeed, overall sportspersonship yielded a very strong relationship ($r = .93$, $p < .001$, ICC = .96, $p < .001$). 19 of the 24 items produced a non-significant *t*-value, as did three of the six subscales. The percentage of responses (±1) for each item ranged from 92.8% to 100%.

**Table 6.1.**
**The minimum and maximum test-retest differences, means and standard deviations per item per test, *t* statistic, kappa, product-moment correlations (*r*), intraclass correlations (ICC), and percentage of participants with differences within (±1).**

| Item | Min | Max | Test 1 | | Test 2 | | *t* | kappa | *r* | ICC | % (±1) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | *M* | *SD* | *M* | *SD* | | | | | |
| 1 | -1 | 2 | 2.57 | .85 | 2.67 | .77 | -1.47 | .56** | .74** | .85** | 97.1 |
| 2 | -2 | 2 | 2.85 | .77 | 2.82 | .81 | 0.31 | .46** | .60** | .75** | 94.3 |
| 3 | -1 | 2 | 3.20 | .74 | 3.14 | .70 | 0.90 | .47** | .64** | .82** | 98.6 |
| 4 | -1 | 1 | 2.69 | .86 | 2.27 | .83 | 0.47 | .67** | .85** | .92** | 100.0 |
| 5 | -2 | 2 | 3.21 | .79 | 3.12 | .83 | 1.34 | .51** | .68** | .81** | 95.7 |
| 6 | -2 | 1 | 2.92 | .89 | 2.89 | .82 | 0.36 | .53** | .76** | .86** | 98.6 |
| 7 | -1 | 1 | 3.08 | .66 | 3.07 | .69 | 0.17 | .32** | .57** | .72** | 100.0 |
| 8 | -2 | 1 | 3.63 | .62 | 3.51 | .63 | 2.08* | .51** | .65** | .79** | 98.6 |
| 9 | -1 | 1 | 3.25 | .85 | 3.18 | .81 | 1.28 | .60** | .81** | .90** | 100.0 |
| 10 | -1 | 2 | 3.17 | .79 | 3.06 | .67 | 1.69 | .51** | .69** | .81** | 98.6 |
| 11 | -2 | 1 | 3.12 | .68 | 2.89 | .69 | 4.15* | .56** | .74** | .85** | 98.6 |
| 12 | -3 | 2 | 3.33 | .70 | 3.21 | .79 | 1.56 | .46** | .57** | .72** | 95.7 |
| 13 | -1 | 2 | 3.18 | .73 | 3.23 | .63 | -0.71 | .49** | .59** | .74** | 97.1 |
| 14 | -1 | 1 | 2.95 | .83 | 2.85 | .81 | 2.00* | .63** | .82** | .90** | 100.0 |
| 15 | -2 | 1 | 3.48 | .53 | 3.36 | .48 | 2.08* | .43** | .46** | .63** | 100.0 |
| 16 | -1 | 2 | 3.26 | .66 | 3.23 | .50 | 0.60 | .48** | .59** | .72** | 98.6 |
| 17 | -1 | 1 | 3.25 | .73 | 3.18 | .75 | 1.18 | .49** | .72** | .84** | 100.0 |
| 18 | -1 | 2 | 2.69 | .76 | 2.76 | .75 | -1.06 | .52** | .67** | .80** | 97.1 |
| 19 | -2 | 2 | 2.98 | .94 | 3.08 | .89 | -1.41 | .55** | .72** | .83** | 92.8 |
| 20 | -2 | 1 | 2.82 | .76 | 2.94 | .66 | -1.74 | .42** | .62** | .76** | 98.6 |
| 21 | -2 | 1 | 3.21 | .73 | 3.07 | .69 | 2.17* | .56** | .64** | .78** | 95.7 |
| 22 | -2 | 1 | 3.15 | .67 | 3.20 | .64 | -0.82 | .57** | .66** | .80** | 98.6 |
| 23 | -1 | 2 | 2.98 | .74 | 2.92 | .71 | 1.00 | .55** | .72** | .84** | 98.6 |
| 24 | -1 | 1 | 3.02 | .73 | 2.95 | .74 | 1.28 | .59** | .76** | .86** | 100.0 |

*Note.* Items 1, 4, 6, 9, 22 = Officials; items 3, 5, 10, 14, 18 = Rules; items 8, 12, 17, 19 = Legitimacy of Injurious Acts; items 13, 15, 16, 20 = Opponent; items 2, 7, 11, 21, 23, 24 = Game Perspective.
*Statistically significant at $p < .05$, **$p < .01$.

Of the five items that displayed a significant *t* value, two items were from the game perspective dimension, one from opponent, one from legitimacy of injurious acts, and one from rules. The only significant *t* value at $p < .01$ was item 11 "It is more important to do what is right than to win" from the game perspective subscale. Consequently, the subscale also demonstrates a significant *t* value, though it is the only one to do so.

**Table 6.2.**
**Means and standard deviations per subscale per test, *t* statistic, kappa, product-moment correlations (*r*), and intraclass correlations (ICC).**

| Subscale | Test 1 | | Test 2 | | *t* | kappa | *r* | ICC | Mean *r* |
|---|---|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | | | | | |
| Officials | 2.92 | .69 | 2.92 | .66 | -0.14 | .32** | .89** | .94** | .76 |
| Rules | 3.05 | .63 | 2.99 | .62 | 1.73 | .28** | .87** | .93** | .70 |
| Injurious acts | 3.30 | .55 | 3.25 | .57 | 1.41 | .29** | .83** | .90** | .67 |
| Opponent | 3.19 | .49 | 3.19 | .44 | -0.08 | -.01 | .71** | .79** | .57 |
| Perspective | 3.04 | .53 | 2.95 | .58 | 3.48** | .27** | .91** | .95** | .67 |
| Sportspersonship | 3.08 | .43 | 3.04 | .48 | 2.20* | .10** | .93** | .96** | .67 |

*Statistically significant at $p < .05$, **$p < .01$

To investigate subtle changes in subscale scores, Table 6.3 presents the factor correlations between time one and time two, plus the correlations between factors within each time. Although this does not impact greatly on the reliability of the measure, it does highlight changes in how the factors related to each other at different time periods.

**Table 6.3.**
**Correlation matrix for CAPSS subscales at time 1 and time 2.**

| Factor | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. Officials | - | .56** | .38** | .29** | .46** |
| 2. Rules | .51**<br>.57** | - | .58** | .55** | .62** |
| 3. Injurious Acts | .36**<br>.46** | .62**<br>.59** | - | .36** | .47** |
| 4. Opponent | .23*<br>.52** | .35**<br>.59** | .34**<br>.38** | - | .40** |
| 5. Game Perspective | .47**<br>.59** | .62**<br>.76** | .45**<br>.58** | .32**<br>.61** | - |

*Note.* Correlations below the diagonal represent corresponding times. Upper value in each row is time one, lower value in each row is time 2. Correlations above the diagonal represent relationship between time 1 and time 2.
*Statistically significant at $p < .05$, **$p < .01$.

### 6.4.3. Discussion

The present study sought to examine the test-retest stability of the compliant and principled sportspersonship scale. Overall, the results suggest that the test-retest stability of the CAPSS is high. In particular, the higher-order subscales demonstrate very strong stability. While some items identify a significant difference between test and retest, these do not affect subscale results. Interestingly, while the principled opponent dimension presented exactly the same mean score between test 1 and test 2, the individual variance was greater than in the other subscales, which supports the use of item-level analysis. This is best demonstrated by the discrepancy between calculating subscale-level Pearson's correlation coefficient (*r*) and the mean item coefficient for each dimension, shown in Table 6.2.

This study presents a thorough test-retest analysis at both item-level and subscale-level, as recommended by Lane et al. (2005). The meticulous analyses conducted are a clear strength of the study. However, it is worth noting that the proportion of agreement method may need adjusting for 4-point Likert-type scales such as the one used in CAPSS. Also, the use of online data collection methods includes some of its own limitations. Test-retest stability can be best assessed through structural equation modelling, as it calculates the stability of concepts free from error and the stability of measurement error itself (Schutz & Gessarali, 1993; Marsh, 1993). However, as Bentler (1995) and Tabachnick and Fidell (2001) recommend a minimum of 10 participants per item, a sample size of at least 480 would have been required for the present study to conduct item-level analysis.

In conclusion, the examination of the test-retest stability of the CAPSS presents strong support regarding its resistance to change as a result of measurement error. In addition to content validity, factorial validity, and construct validity, this study adds further support for the psychometric properties of CAPSS and the compliant and principled sportspersonship concept.

## 6.5. Criterion Validity

As identified in Chapter 3, criterion validity consists of two main concepts; predictive validity and concurrent validity. While concurrent validity correlates a measurement with an existing benchmark, here the focus is more on predictive validity. That is, the extent to which the results of a psychometric measure predict future behaviour.

## 6.6. Study 7: Compliant and Principled Sportspersonship: A Dilemma

Game theory was originally devised by mathematicians von Neumann and Morgenstern (1944) to determine optimal strategies in competitive situations. This was originally specifically aimed at economic endeavours. Over time, evolutionary biologists, such as Maynard-Smith and Price (1973) became interested, as they likened the evolutionary process to a competitive situation. Drawing on Darwinism, Maynard-Smith and Price proposed evolutionary game theory (EGT) to examine how species test strategies and the most successful of them prosper. Of particular interest was the notion of altruism, as Darwinian Theory seems opposed to individuals adopting behaviours of a cost to themselves but of benefit to others. However, exactly this is observed in many species, creating an interest in trying to explain why. In human groups, EGT has become of great interest to mathematicians, economists, biologists, and psychologists.

Tactically, the prisoner's dilemma game has been the centre of many discussions, often by evolutionary psychologists. The game requires participants to choose to cooperate or defect against an opponent who faces the same choice. Points are then awarded based on the player selections as identified in Table 6.4. Therefore, four clear tactics arise representing an inequality of payoff. Specifically: Tempt > Cooperate > Defect > Sucker. Tempt is the tactic of selecting to defect against cooperation. In this tactic, the player defecting is tempted by the maximum payoff of four points. The opponent here, who has chosen to cooperate against defect, has fallen for the sucker tactic.

**Table 6.4.**
**Prisoner's dilemma choices and payoffs**

| | | Player 2 | |
|---|---|---|---|
| | Player 1 | C | D |
| Points | C | 3,3 | 1,4 |
| | D | 4,1 | 2,2 |
| Tactic | C | Coop, Coop | Sucker, Tempt |
| | D | Tempt, Sucker | Defect, Defect |

*Note.* In each pair, the left value is the payoff for player one and the right value is the payoff for player two.

The reason for the extent of debate regarding this game stems from the notion of Simpson's paradox (1951). The paradox here is that findings regularly demonstrate that most participants choose to cooperate more than defect, despite the inequality of payoff meaning that to defect is more fruitful (Dawes & Thaler, 1988). Known as the Nash equilibrium (see Nash, 1951), it is logical to choose to defect, particularly in a one-shot game, because cooperating will always result in a lower payoff than defecting regardless of the opposition selection. For example, if the opponent chooses to cooperate, defecting will gain the player four points compared to three. If the opponent chooses to defect, defecting will gain the player two points compared to one. Chater, Vlaev, and Grinberg (2008) explain that people will continue to choose to cooperate because of the higher average payoff. Consider a societal example such as the way that people hold open a shop door for the next person. The likelihood is that the next person is a complete stranger so this is a one-shot game with no recourse if one were to defect. However, in-keeping with Kohlberg's (1976) conventional morality, we understand societal norms and therefore do our bit. We know that a society in which everybody holds the door for everybody else has a greater net reward than a society where we continuously defect. In sport, we also develop many social conventions that are adhered to because we recognise the net benefit on the assumption that everybody contributes.

The contrast between repeated and one-shot designs highlights a change in consequence and perspective. Clearly, a one-shot condition, that is, when the game will only

be placed once in isolation, has less potential negative consequence, and there is no opportunity for revenge. This represents a typical competitive condition, one which is more common in sport than in everyday life. For example, the chance to prevent an opponent from scoring in the final moments of an important match by committing a professional foul is entirely competitively focused, effectively presenting a one-shot game. However, the vast majority of performance is repeated, and rewards are accumulative. Consider the training environment. This is clearly a repeated, accumulative condition, where cooperation between all yields the greatest net benefit to the participants. This explains why top performers in individual sports, such as tennis, are often happy to practice together. Many seemingly competitive situations are also accumulative in a broader context. For example, a league match is competitive, but it forms part of a much larger season, therefore from a moral decision-making perspective, it is a repeated, accumulative condition.

The illogical option of cooperating in a one-shot condition, though regularly observed has been somewhat of a mystery to researchers. Existing explanations include strong reciprocity and evolutionary legacy perspective. Strong reciprocity has been suggested as an explanation for cooperation in a one shot condition (e.g., Fehr & Gintis, 2007; Gintis, 2000; Gintis, Bowles, Boyd, & Fehr, 2003) by claiming that a social norm evolves whereby cooperation is expected and therefore adhered to. In trying to extract the determinants of cooperation, Yang, Li, and Zheng (2013) found that reciprocity, perceived control, and risk taking all accounted for a relatively equal proportion of variance. The strong reciprocity explanation has however been vehemently rejected by some researchers (e.g., Burnham, 2003). Indeed, Burnham and Johnson (2005) and Hagen and Hammerstein (2006) suggest that in conditions where the participant does not know who their opponent is and is strictly a one-shot condition, the only real explanation for electing to cooperate is because they have not truly understood the game. Rather, like Burnham and Hare (2007), these authors

recommend evolutionary legacy hypothesis as a valid explanation of cooperation. This proposes that such behavioural anomalies are caused, at least in part, by human ancestral and modern conditions (Burnham, McCabe, & Smith, 2000). Burnham and Hare suggest that anomalies in human economic behaviour may be in part explained by a misfiring of conserved brain systems that motivate behaviour that are no longer relevant to a modern society. This theory has received partial support from Kanazawa and Fontaine (2013), who tested and supported two main hypotheses. Firstly, they found that individuals were more likely to cooperate when faced with a video image of a human being. Secondly, they found a positive correlation with general intelligence and defection.

There is a lack of consensus in the literature regarding why people are frequently found to cooperate in a one-shot condition. Some conditional elements clearly have an impact, as do some personality factors. Kuzmanovic, Djurovic, and Martic (2012) found that knowing who the opponent was and changing the payoff structure matrix effected cooperation rates. However, they found no effect for gender, social value orientation, or higher rewards, in this case additional exam credits. There is presently no evidence of sportspersonship being considered as a determinant of cooperation.

Prisoner dilemma studies have attempted to identify how participants select different tactics in variations of the game. For example, Boone, De Brabander, Carree, de Jong, van Olffen, and van Witteloostuijn (2002) examined how tactics changed in a one-shot game compared to a repeated game of 12 rounds, including a version in which participants did not know how many rounds there would be. Boone et al. found that cooperative choices were significantly higher in repeated forms of the game, which is to be expected. It is not in the scope of this study to examine the full motivating factors in choosing to cooperate in a one-shot games, which has been studied extensively (e.g., Cooper, De Jong, Forsythe, & Ross, 1996; Schneider & Mockus, 1974). Nor is it within the scope to determine what participants

believe to be the benefit of cooperating, such as altruistic satisfaction, self-worth, wellbeing, or beliefs in good karma. However, it will be interesting to note the relationships between compliant and principled perspectives at specific choices. For example, in a one-shot scenario, to cooperate appears a more principled approach, whereas in a repeated condition, cooperation could perhaps be better explained by tactical elements, such as net benefit and coercion.

Emotional intelligence (EI) has received much attention over the past two decades, as researchers have examined ability EI (or cognitive-emotional ability) concerns emotion-related cognitive abilities, typically assessed using performance tests (e.g., Mayer & Salovey, 1997). Others however, consider the operationalisation of ability EI to be problematic because the subjectivity of emotional experience (Petrides, 2011). Rather, authors such as Petrides have promoted a trait EI concept, typically assessed using self-report measures, similar to common personality inventories. Petrides (2009) presented a 15-factor model of trait EI, listing adaptability, assertiveness, emotion expression, emotion management, emotion perception, emotion regulation, impulsiveness, relationships, self-esteem, self-motivation, social awareness, stress management, trait empathy, trait happiness, and trait optimism.

Moral judgement has been defined as the evaluation of actions relative to norms and values established by a society (Prehn et al., 2007). Using many of the concepts developed by Kohlberg (1969, 1976), Lind (1978) suggested that morality requires not only personal orientations, but a moral competence to act accordingly. Consequently, he developed the moral competence test (formally known as the moral judgement test, 1979, 2008), which quantitatively assessed moral competence in response to prescribed hypothetical dilemmas.

The purpose of the present study was to examine the extent to which performers cooperate or defect in a prisoner's dilemma game under two conditions; an accumulative

condition and a competitive condition. Moreover, all participants completed measures of sportspersonship, emotional intelligence, and moral competency prior to taking part, to enable examination of the criterion-related validity of the scale. The proportion of times participants opted to cooperate was observed, as was the first round of each matchup, the final round, which created a one-shot condition, the total points obtained, and the proportion of times a participant chose to cooperate after being suckered in the previous round. That is, they chose to cooperate but the opponent defected.

It was hypothesised that in the accumulative condition, participants would cooperate more than in the competitive condition, participants would defect more in the competitive condition than in the accumulative condition, and cooperation would be positively correlated to total points scored in both conditions, but more strongly in the accumulative condition. In terms of the predictive capabilities of CAPSS, it was hypothesised that subscales would be positively associated with cooperative behaviour, game perspective would be more strongly associated than compliant sportspersonship with cooperative behaviour in a one-shot condition, and game perspective would be more strongly associated than compliant sportspersonship with cooperative behaviour in the competitive condition. Finally, it was predicted that emotional intelligence and moral competency would be associated with cooperation in the same way that sportspersonship would be, and that emotional intelligence, moral competency and sportspersonship would all be positively correlated.

### 6.6.1. Methods

#### 6.6.1.1. Participants

Forty-three participants (males = 32; females = 11) aged from 18 to 40 years ($M$ = 20.33, $SD$ = 3.60), from a range of team sports ($n$ = 36) and individual sports ($n$ = 7) with an average playing experience of 10.86 years ($SD$ = 6.07) in their main sport volunteered to take part in the study.

#### 6.6.1.2. Measures

***Compliant and principled sportspersonship.*** Compliant and principled sportspersonship was measured using the CAPSS. This included 24 items and five-subscales in total. Subscales represent compliance towards officials, towards rules, not legitimising injurious acts, respect for opponent, and game perspective. Items are graded on a 4-point Likert-type scale anchored at 1 = *strongly disagree* and 4 = *strongly agree*.

***Trait emotional intelligence.*** Trait emotional intelligence was assessed using the trait emotional intelligence questionnaire (TEIQue; Petrides, 2001; Petrides & Furnham, 2003). The TEIQue comprises of 153 items on the 15 subscales identified in the earlier review of literature. Further, the questionnaire includes four higher-order factors; wellbeing, self-control, emotionality, and sociability, and a global trait EI score. Participants are required to respond to each item on a 7-point Likert-type scale from 1 = *completely disagree* to 7 = *completely agree*. Reliability coefficients have been reported from .60 to .92 to the subscales, .86 to .94 for the higher-order factors, and .96 for overall trait EI (Petrides, 2001).

***Moral competence.*** Moral competence was assessed using the moral competence test (MCT; Lind, 1998, 2007). The MCT presents participants with two complex moral dilemmas; the doctor's dilemma and the worker's dilemma. Each dilemma presents a short background story culminating in a moral action. For example, in the doctor's dilemma, a doctor elects to give a terminally ill woman, suffering immensely an overdose of morphine that will kill her after she had begged him. The participant must then indicate the extent to which they agree (-3 = *I strongly reject*, +3 = *I strongly accept*) or not with the action and six arguments supporting (pro-arguments) and six arguments rejecting (counter-arguments) the protagonist's solution. Each argument presents a moral orientation aligned to Kohlberg's stages of moralisation (1969, 1976). A moral judgement competence score (C-score) is calculated as an individual's total response variation. For example, a highly morally

competent individual (indicated by a C-score close to 100), will appreciate all arguments referring to a particular socio-moral perspective regardless of whether it is a pro- or counter-argument. Conversely, an individual with low moral competence will identify only with arguments that support their own solution to the given dilemma.

#### 6.6.1.3. Procedure

Following ethical approval from a higher education institution in the UK, data collection took part on four separate days, two of which were designated as accumulative, and two were competitive. In the accumulative condition, participants were informed that they would receive three pence for every point they scored over the course of the day. In the competitive condition, participants were told that they would be placed in a league table, with the individual finishing first winning £50, second place winning £25, and third place £10. Those who finished outside of the top three places did not receive a prize.

Between 8 and 13 participants conducted the study on each day. On arrival, participants were assigned an ID number, read their information packs, signed the informed consent form, and completed the questionnaires with demographic data (Appendix F). After the rules were explained, participants were assigned to two separate holding rooms to ensure that they were not aware of their opponent, as the opponent would be any of the group from the other holding room. In between the two holding rooms was the experimental room, where the game was conducted. Care was taken to ensure that the order in which participants entered and left the room and the seating positions did not provide participants with enough information to know who they were playing against. A round-robin tournament then took place. Each fixture consisted of 10 rounds, each requiring the participants to choose to cooperate or defect by holding up a card with a large printed “C” or “D”, both visible to the researcher. The researcher would then read the results for both participants to hear with the appointed scores. For example, if participant one held up a “C” and participant two held up a

"D", the researcher would state "cooperative versus defect. That is one point for the cooperator, and four points for the defector" This would continue for ten rounds before the fixture concluded, and the participants were escorted back to their appropriate holding room. In total, each day took approximately three and a half hours to complete.

#### 6.6.1.4. Data Analysis

To test the hypotheses, data analysis was conducted in two phases. The first phase related to the first set of hypotheses, specifically relating to the difference between condition types. Specifically, an independent samples *t* test was used to examine differences in cooperation and defection in the accumulative and competitive conditions and bivariate correlations were used to assess the strength of relationship between tactics and success. A paired samples *t* test examined changes in tactics between the first round and a one-shot condition in the final round. In the second set of analyses, bivariate correlations examined the strength of relationship between CAPSS subscales, EI, and moral competence and cooperation in accumulative and competitive conditions. The final round of each fixture was considered a one-shot condition. To further investigate the role of sportspersonship on cooperation, a median-split was performed and another independent samples *t* test conducted. To examine the predictive properties of condition and sportspersonship, moral competence, and EI effects, cooperation percentage was inserted as a dependent variable in a multiple linear regression model entering condition effects at Step 1, sportspersonship effects, moral competence, and EI at Step 2, and interaction effects at Step 3. Finally, an identical regression model was constructed to examine cooperation in the final round, one-shot condition.

### 6.6.2. Results

#### 6.6.2.1. Descriptive Statistics

There was no missing data or issues with outliers, which were examined using Q-Q plots. Tests for normality revealed no issues with skewness (< 2) or kurtosis (< 2) for all dependent variables. The descriptive statistics for these variables are displayed in Table 6.5. Internal consistency was examined for the CAPSS using Cronbach's alpha. Reliability scores were very good, with compliance towards officials $\alpha = .86$, compliance towards rules $\alpha = .79$, not legitimising injurious acts $\alpha = .77$, approach towards opponent $\alpha = .69$, and game perspective $\alpha = .91$. Overall sportspersonship, summing all 24 items $\alpha = .94$.

**Table 6.5.**
**Descriptive statistics for CAPSS and prisoner's dilemma variables**

| Variable | Min | Max | Mean | SD | Skew | Kurt |
|---|---|---|---|---|---|---|
| Officials | 1.60 | 4.00 | 2.81 | .73 | -.01 | -1.35 |
| Rules | 1.75 | 3.75 | 2.74 | .62 | .10 | -1.09 |
| Injurious acts | 1.75 | 4.00 | 2.86 | .69 | -.15 | -1.11 |
| Opponent | 1.60 | 4.00 | 3.06 | .50 | -.86 | 1.31 |
| Game perspective | 1.00 | 4.00 | 2.70 | .72 | -.42 | -.40 |
| Sportspersonship | 1.67 | 3.79 | 2.85 | .54 | -.35 | -.55 |
| Wellbeing | 3.50 | 6.52 | 5.05 | .69 | -.31 | -.11 |
| Self-control | 3.14 | 5.67 | 4.30 | .58 | .60 | -.31 |
| Emotionality | 3.84 | 5.47 | 4.70 | .42 | .06 | -.66 |
| Sociability | 3.96 | 5.99 | 4.81 | .53 | .15 | -.91 |
| global trait EI | 4.00 | 5.56 | 4.67 | .36 | .30 | -.43 |
| Moral competency | 1.69 | 57.75 | 17.23 | 13.82 | .96 | .78 |
| Cooperation percentage | .00 | 86.67 | 43.98 | 28.41 | -.22 | -1.29 |
| Defection percentage | 13.33 | 100.00 | 56.02 | 28.41 | .22 | -1.29 |
| First round cooperation | .00 | 100.00 | 64.70 | 33.79 | -.82 | -.69 |
| One shot cooperation | .00 | 88.89 | 22.37 | 29.67 | 1.25 | .19 |
| Cooperation after suckered | .00 | 93.33 | 38.75 | 25.38 | .51 | -.19 |

*Note.* For TEIQue variables, higher-order factors only are presented. Wellbeing comprises of self-esteem, trait happiness, and trait optimism. Self-control comprises of emotion regulation, stress management, and impulsiveness. Emotionality comprises of emotion perception, emotion expression, trait empathy, and relationships. Sociability comprises of social awareness, emotion management, and assertiveness. Global trait EI is the mean of all subscales.

### 6.6.2.2. Correlational Analysis

Bivariate correlations were calculated to examine the relationship between sportspersonship and emotional intelligence factors. Results are presented in Table 6.6. The most striking result is the lack of significant correlations between most of the factors with the exception of emotionality, which was significantly positively correlated with all sportspersonship factors.

**Table 6.6.**
**Bivariate correlations between sportspersonship and higher-order trait emotional intelligence factors**

| Variable | Wellbeing | Self-control | Emotionality | Sociability | Global EI |
|---|---|---|---|---|---|
| Officials | -.16 | .17 | .45** | -.05 | .12 |
| Rules | -.26 | -.03 | .39* | -.19 | -.08 |
| Injurious Acts | -.06 | .05 | .46** | -.24 | .05 |
| Opponent | -.16 | .00 | .38* | -.05 | .06 |
| Game Perspective | -.20 | .12 | .59** | -.18 | .06 |
| Sportspersonship | -.18 | .10 | .55** | -.16 | .07 |

*Statistically significant at $p < .05$, **$p < .01$.

In terms of moral competence, there were no significant correlations with any factor from the CAPSS or the TEIQue. The strength of the relationships between sportspersonship factors and emotionality was considered worthy of further exploration. Therefore, bivariate correlations were calculated between sportspersonship factors and the emotionality subscales of emotion perception, emotion expression, trait empathy, and relationships. These are presented in Table 6.7.

Significant relationships existed throughout the sportspersonship and emotionality correlation matrix. Notably, game perspective was significantly positively correlated with all aspects of emotionality and emotion expression and trait empathy were significantly positively related to most aspects of sportspersonship.

**Table 6.7.**
**Bivariate correlations between sportspersonship and emotionality subscales from TEIQue**

| Variable | Emotion Perception | Emotion Expression | Trait Empathy | Relationships |
|---|---|---|---|---|
| Officials | .18 | .40** | .31* | .25 |
| Rules | .09 | .34* | .29 | .24 |
| Injurious Acts | .17 | .31* | .38* | .34* |
| Opponent | .08 | .24 | .32* | .33* |
| Game Perspective | .32* | .37* | .46** | .40** |
| Sportspersonship | .22 | .40** | .42** | .38** |

*Statistically significant at $p < .05$, **$p < .01$.

### 6.6.2.3. Condition Effects

An independent samples *t* test examined the condition effects by testing for significant differences in all dependent variables in both accumulative and competitive conditions. Sportspersonship, moral competence, and trait EI variables were included to screen for potential sampling effects. No significant differences indicate that results were not brought about by one group coincidentally obtaining individuals higher in sportspersonship, EI, or moral competence. The only significant difference between groups was in sociability ($t(40) = 2.30$, $p < .05$, $d = .71$). Descriptive statistics from the group comparison is displayed in Table 6.8. Contrary to the hypothesis, no significant differences were detected for cooperation between groups. However, there was a significant difference ($t(28.20) = 2.85$, $p < .01$, $d = .87$) in the one-shot game, as cooperation was significantly higher in the accumulative condition than the competitive condition. Similarly, those in the accumulative condition were significantly more likely to cooperate after being suckered in the previous round ($t(37) = 2.52$, $p < .05$, $d = .79$) than participants in the competitive condition. Overall, a greater proportion of the total points available were achieved in the accumulative condition than the competitive condition ($t(27.21) = 4.50$, $p < .001$, $d = 1.43$). A paired samples *t* test to examine the condition effects between the first round cooperation and the final, one-shot cooperation revealed a large significant difference ($t(42) = 8.74$, $p < .001$, $d = 2.67$).

**Table 6.8.**
**Group comparison for sportspersonship, moral competence, trait EI, and tactics**

| Variable | Accumulative (*n* = 23) | Competitive (*n* = 20) |
|---|---|---|
| Officials | 2.65 (.71) | 3.03 (.69) |
| Rules | 2.66 (.59) | 2.86 (.58) |
| Injurious acts | 2.76 (.67) | 3.04 (.72) |
| Opponent | 3.05 (.53) | 3.10 (.41) |
| Game perspective | 2.60 (.68) | 2.85 (.67) |
| Sportspersonship | 2.75 (.54) | 2.97 (.52) |
| Moral competence | 17.60 (15.03) | 15.76 (12.77) |
| Wellbeing | 5.14 (.78) | 4.96 (.58) |
| Self-control | 4.38 (.72) | 4.21 (.38) |
| Emotionality | 4.64 (.46) | 4.77 (.37) |
| Sociability | 4.98 (.50) | 4.62 (.51)* |
| Global EI | 4.72 (.40) | 4.61 (.31) |
| Cooperation percentage | 41.54 (33.83) | 39.68 (16.48) |
| Defection percentage | 58.46 (33.83) | 60.32 (16.48) |
| First round cooperation | 60.32 (38.14) | 65.06 (28.44) |
| One shot cooperation | 29.15 (33.75) | 6.62 (11.96)** |
| Cooperation after suckered | 45.77 (27.02) | 27.18 (18.39)* |
| Total points | 63.95 (3.81) | 55.57 (7.54)** |

*Statistically significant at $p < .05$, **$p < .01$.

#### 6.6.2.4. Sportspersonship, Moral Competence, and Emotional Intelligence Effects

In terms of demonstrating the criterion validity of CAPSS, it was hypothesised that there would be positive correlations between aspects of sportspersonship and cooperation. The results of the correlational analysis are presented in Table 6.9. Clear positive correlations between sportspersonship subscales and the overall percentage of cooperation were evident, with all correlations significant except compliance towards rules.

Although there was a trend to suggest a positive relationship between sportspersonship and first round cooperation, only the correlation to compliance towards officials was statistically significant. The trend was still evident, though lesser in one-shot cooperation. There was no relationship between sportspersonship and participant reaction to being suckered (i.e., selected to cooperate when the opponent defected).

**Table 6.9.**
**Pearson correlation coefficients for sportspersonship and cooperation**

| Variable | Percentage of cooperation | First round cooperation | One shot cooperation | Cooperation after suckered |
|---|---|---|---|---|
| Officials | .45** | .35* | .10 | .09 |
| Rules | .23 | .17 | .13 | .00 |
| Injurious acts | .39* | .19 | .22 | -.01 |
| Opponent | .42** | .16 | .12 | -.05 |
| Game perspective | .42** | .24 | .13 | -.05 |
| Sportspersonship | .46** | .27 | .17 | .01 |
| Moral competence | .25 | .35* | .18 | .06 |
| Wellbeing | .15 | .02 | .30 | .09 |
| Self-control | .15 | .17 | .31* | .07 |
| Emotionality | .53** | .53** | .34* | .15 |
| Sociability | -.07 | -.05 | .19 | .21 |
| Global EI | .25 | .26 | .43** | .21 |

*Statistically significant at $p < .05$, **$p < .01$.

Moral competence correlated positively with cooperation but only significantly so with first round cooperation. Emotional intelligence was significantly positively correlated with cooperation in the one-shot condition. The clearest relationship between cooperation and emotional intelligence was on the emotionality subscale, which as identified earlier, is the subscale most closely linked to sportspersonship.

To examine the interaction between the condition and sportspersonship, moral competence, and emotional intelligence effects, the relationships between variables and percentage of cooperation were examined between the two conditions. The data presented in Table 6.10 appear to demonstrate some difference in the correlation between sportspersonship, moral competence, and trait EI and cooperation in the two conditions. Specifically, the positive relationship was moderate to strong under the accumulative condition, but no significant relationship was evident in the competitive condition. To examine the statistical significance of the difference in correlations, Fisher's *r*-to-*z* transformation was applied. Due to the relatively small sample size when splitting the original sample, very large effects were required to obtain statistically significant *z* scores. The only variable that demonstrated this was global trait emotional intelligence and

cooperation in the one-shot condition ($z = 2.27$, $p < .05$). Many aspects of sportspersonship revealed substantial differences in correlation (i.e., $z > 1.0$), including overall sportspersonship and overall cooperation ($z = 1.50$, $p = .14$), but these were not statistically significant.

**Table 6.10.**
**Condition and sportspersonship effects**

| Variable | Accumulative (*n* = 23) | | | | Competitive (*n* = 20) | | | |
|---|---|---|---|---|---|---|---|---|
| | % C | R1 C | 1-shot | S-R | % C | R1 C | 1-shot | S-R |
| Officials | .61** | .44* | .27 | .26 | .25 | .20 | .21 | .09 |
| Rules | .31 | .14 | .24 | .00 | .10 | .21 | .20 | .19 |
| Injurious acts | .53** | .27 | .39 | .15 | .21 | .05 | .28 | -.02 |
| Opponent | .54** | .30 | .16 | .13 | .08 | -.12 | .17 | -.36 |
| Game perspective | .54** | .31 | .22 | -.02 | .19 | .11 | .29 | .09 |
| Sportspersonship | .61** | .36 | .30 | .12 | .21 | .12 | .29 | .05 |
| Moral competence | .27 | .36 | .16 | -.10 | .18 | .34 | .48 | .24 |
| Wellbeing | .15 | .05 | .33 | .18 | .19 | -.01 | .06 | -.29 |
| Self-control | .20 | .24 | .36 | -.09 | -.06 | .02 | -.19 | .07 |
| Emotionality | .66** | .62** | .61** | .36 | .26 | .37 | -.11 | -.07 |
| Sociability | -.09 | -.03 | .12 | .30 | -.06 | -.04 | -.10 | -.19 |
| Global EI | .30 | .35 | .57** | .32 | .12 | .11 | -.10 | -.21 |

*Note.* % C = percentage of cooperation, R1 C = first round cooperation, 1-shot = one shot cooperation, S-R = responded to being suckered with cooperation.
*Statistically significant at $p < .05$, **$p < .01$.

Sportspersonship again demonstrated the strongest relationships with cooperation. A median-split on sportspersonship scores was conducted to enable further comparison with cooperation. Figure 6.1 illustrates the difference between the low sportspersonship and high sportspersonship groups on cooperation percentage. The high sportspersonship group chose to cooperate much more than the low sportspersonship group. An independent samples *t* test confirmed that these scores were significantly different ($t(41) = -2.50$, $p < .05$, $d = -.76$).

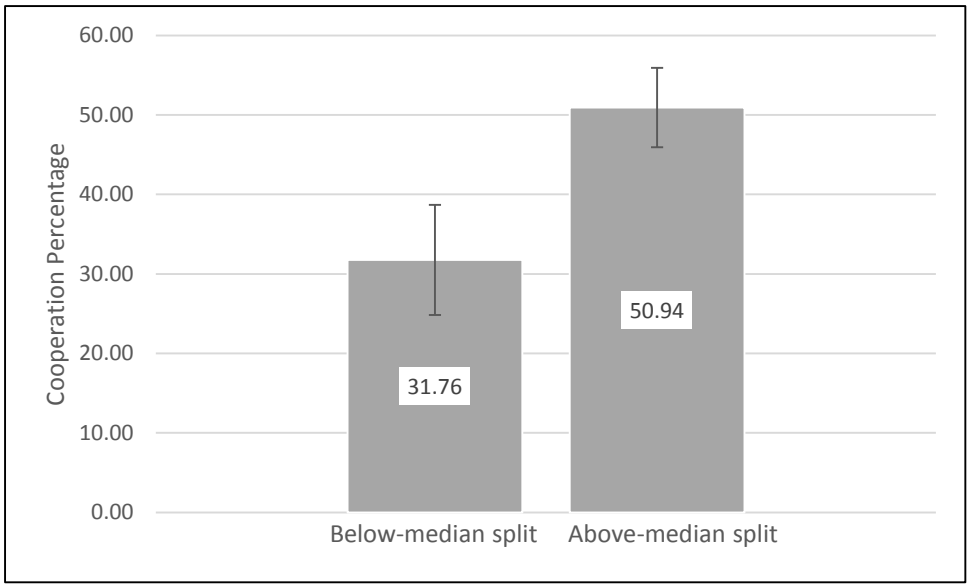



**Figure 6.1.**
**Mean cooperation percentage by sportspersonship**

The next logical step in analysing the data was to examine the extent to which sportspersonship and the condition predicted cooperation percentage. To achieve this, a linear multiple regression model was examined to explore the variance of percentage cooperation as a dependent variable. The condition was entered at Step 1 with the dummy-coded variables, 1 for accumulative and 0 for competitive. Moral competence, and trait EI were entered at Step 2, and sportspersonship was entered at Step 3 to determine additional variance explained by CAPSS. The results, presented in Table 6.11 indicate that sportspersonship was the largest predictor variable, as 41.1% of the overall variance was explained. The large proportion of variance explained by sportspersonship above other variables is significant in supporting the criterion validity of CAPSS. The ANOVA for model three revealed a moderate to large effect size for this: $F(4, 33) = 5.75,\ p < .001$.

**Table 6.11.**
**Multiple regression analysis with percentage cooperation as the dependent variable**

| | B | SE B | $\beta$ | t | $R^2$ |
|---|---|---|---|---|---|
| *Step 1* | | | | | .01 |
| Condition | -4.38 | 8.97 | -.08 | -.49 | |
| *Step 2* | | | | | .08* |
| Moral competence | .53 | .30 | .27 | 2.74 | |
| Trait EI | 22.75 | 11.93 | .30 | 1.91 | |
| *Step 3* | | | | | .41** |
| Sportspersonship | 25.48 | 7.04 | .49 | 3.62** | |

*Statistically significant at $p < .05$, **$p < .01$.

Explanations of why people chose to cooperate in a one-shot condition has been the source of much debate. As such, a second regression model was proposed with final round cooperation percentage as the dependent variable. The results explained 43.6% of the variance and each ANOVA was significant (Step 1 $F(1, 36) = 9.16$, $p < .01$; Step 2 $F(3, 34) = 8.12$, $p < .01$; Step 3 $F(4, 33) = 6.37$, $p < .01$). The coefficients from this analysis are presented in Table 6.12. In explaining variance of cooperation in a one shot condition, trait EI was the most significant predictor ($\beta = .45$) and condition was also a significant predictor ($\beta = -.45$).A final analysis examined potential mediating effects of sportspersonship, moral competence, and trait EI on the relationship between condition and cooperation overall and in a one-shot condition. A regression model with 5000 bootstrap samples was tested and indirect effects examined. The results yielded no significant indirect effects, ruling out support for mediation.

**Table 6.12.**
**Multiple regression analysis with one-shot percentage cooperation as the dependent variable**

| | B | SE B | $\beta$ | t | $R^2$ |
|---|---|---|---|---|---|
| *Step 1* | | | | | .20** |
| Condition | -26.09 | 8.62 | -.45 | -3.03** | |
| *Step 2* | | | | | .42** |
| Moral competence | .22 | .27 | .11 | .82 | |
| Trait EI | 36.55 | 10.77 | .45 | 3.39** | |
| *Step 3* | | | | | .44 |
| Sportspersonship | 7.70 | 7.39 | .14 | 1.04 | |

*Statistically significant at $p < .05$, **$p < .01$.

### 6.6.3. Discussion

The primary purpose of this study was to examine the criterion validity of the CAPSS by determining the extent to which sportspersonship variables predicted behaviour in a series of prisoners dilemma games. Secondly, the study examined the relationship of moral competence and trait EI with sportspersonship and observed behaviour. The results entirely supported the criterion validity of CAPSS, with sportspersonship variables positively correlating with the proportion that a participant elected to cooperate during the game. Further, regression analyses revealed that participant's tendency to choose to cooperate was positively predicted by sportspersonship beyond measures of moral competence, emotional intelligence, and the condition.

Although the correlations between sportspersonship and the extent to which participants chose to cooperate were moderate to strong, this was primarily in the accumulative condition. In a competitive condition the correlations were not significant. This is something that warrants further investigation, as it may be that sportspersonship is harder to predict in more competitive situations. Further evidence of this can be seen in the weaker associations, though still all positive, between sportspersonship and cooperation in the one-shot condition. This condition, contrived by being the final round of each game, is an opportunity for no comeuppance. The participant knows after this round, there is no opportunity for the opponent to retaliate. It appears that sportspersonship perhaps deteriorates with competition, as does the predictive capability of sportspersonship measures. Sportspersonship values, moral competency, and emotional intelligence are complex psychological structures, requiring a level of reflection that demonstrates high cognitive functioning. They are also all positively associated with cooperation. This result, plus the finding that cooperation deteriorates with competition, questions Burnham and Hare's (2007) suggestion that cooperation is a lack of understanding of the situation. More likely, the

concept of strong reciprocity (Fehr & Gintis, 2007), perceived control, and risk taking (Yang, et al., 2013) are seemingly plausible explanations of cooperation in a one-shot condition. Combined, the condition sportspersonship, moral competence, and trait emotional intelligence predicted 49% of one shot cooperation variance.

Moral competence had little effect or predictive power in the study, though it was positively associated with cooperation and predicted a significant amount of variance in first round cooperation. Trait EI was less powerful than sportspersonship in explaining variance in cooperation except in the one-shot condition. Strong associations existed between emotionality, particularly empathy, and sportspersonship. This supports a trait influence in the concept, which has been largely ignored by prominent researchers in the area (e.g., Vallerand et al, 1996, 1997). Perhaps the strongest support for the criterion-related validity of the CAPSS comes from its ability to explain more variance in cooperation than moral competence and trait EI, two concepts that are respected and long standing.

This study is important in determining the criterion validity of CAPSS, but it does have some limitations. Firstly, the data collection procedure required approximately three and a half hours of participant time, which reduces the potential for a large sample. Participants were allowed to rest in between there matchups however to guard against mental fatigue. It also used a fairly homogenous sample in terms of age. Earlier studies in this thesis have demonstrated a potential age effect so it is important that the results are constrained to a demographic similar to that used in this study, which is fairly representative of high performance sport.

In summary, this study has demonstrated robust support for the criterion-related validity of the CAPSS. Interestingly, it appears that sportspersonship and other personality characteristics are more significant predictors of behaviour than the situation, such as the level of competition. When in a one-shot condition however, performers appear to abandon

these characteristics. Said differently, sportspersonship values appear to matter to people most of the time until the scenario is one of extreme competitiveness. This explains in part why sportspersonship used in this way holds an evolutionary advantage. Given the one-shot "them or me" condition, it is necessary to abandon these values to survive/thrive. Future studies should consider the extent to which moral behaviour is determined by personality or by the environment.

## 6.7. Study 8: Compliant and Principled Sportspersonship: Spotting the Cheats

After the previous study found the potential for competition to reduce sportspersonship, this study further tested that notion. Traditional economic theory suggested that competitiveness was desirable for increased motivation and better performance (Becker, 1957). However, increased performance should consider the potential cost of integrity and honesty (Shleifer, 2004). It is unlikely that a football player dives to win a penalty during training, though such behaviour is readily observed during competitive matches.

To assess the effects of competition on cheating, Schwieren and Weichselbaumer (2010) offered prizes for completion of an online game where 32 participants were required to complete as many mazes as they could, guiding a dot through a two-dimensional labyrinth, in a set period of time. The authors found that overall cheating did not increase under the competitive condition (prize money) compared to a non-competitive condition (no prize money), but females increased their propensity to cheat in the competitive condition. Caution is required in attempting to generalise this finding however, as statistical analysis in Schwieren and Weichselbaumer's paper was based on chi-square, which is a non-parametric and sensitive method.

The purpose of this study was to examine the relationship between competition and cheating in sports participants. Moreover, the ability of sportspersonship to predict cheating

in non-competitive and competitive conditions was assessed. Study 6 found that sportspersonship positively predicted moral behaviour between groups. In this study, a repeated-measures design was employed to examine how the same individuals adapted their behaviour based on the condition. It was hypothesised that all forms of sportspersonship would be positively associated with honesty. However, it was expected that this association would be stronger in the non-competitive condition. A further hypothesis was that frequency and magnitude of untruthful results would be significantly larger in the competitive group.

### 6.7.1. Methods

#### 6.7.1.1. Participants

Thirteen participants (men $n = 7$; women $n = 6$) aged from 18 to 22 years ($M = 19.31$, $SD = 1.11$), from a range of team sports ($n = 7$) and individual sports ($n = 5$) with an average playing experience of 8.61 years ($SD = 3.93$) in their main sport volunteered to take part in the study.

#### 6.7.1.2. Measures

***Sportspersonship.*** Compliant and principled sportspersonship was measured using the 24-item, 5-factor CAPSS developed and tested throughout this thesis. Items are graded on a 4-point Likert-type scale anchored at 1 = *strongly disagree* and 4 = *strongly agree*.

***Honesty.*** Honesty was assessed by participants playing an online maze game (http://www.primarygames.com/puzzles/mazes/maze) for 10 minutes, unsupervised. This game is very similar to one previously been used by Schwieren and Weichselbaumer (2010) for similar purposes. The object of the game is to negotiate a red circle through a randomly-generated, two-dimensional maze to the end. The screen presents the time taken and number of moves required to complete each maze. Participants were responsible for recording information on how many mazes were completed, how long each one took, and how many moves were required to complete each maze. Installed on the computer and running in the

background was screen-recording spyware to cross-validate the self-reported performance against actual performance. This approach negates any requirement for secret filming, which means it is easier to maintain participant anonymity (Schwieren & Weichselbaumer).

***Dummy measure.*** To ensure that participants were not aware of the true purpose of the study, a dummy questionnaire was completed immediately prior to completion of the maze game. This questionnaire was the mental toughness questionnaire-48 (MTQ48; Clough et al., 2002). The MTQ48 contains 48 items anchored by a five-point Likert-type scored from 1 = *Strongly disagree* and 5 = *Strongly agree*. The MTQ48 is based on Clough et al.'s 4C's model of challenge, commitment, control, and confidence.

#### 6.7.1.3. Procedure

Following ethical approval from a UK-based higher education institution, participants were recruited to participate in the study. Each participant recruited was not informed of any prizes. Twenty-four hours after completing the game, they were again contacted and invited to take part for a second time. This time they were informed that the highest score would receive a cash reward of £25. In the event of a tie, the participant with the fewest average moves made per maze would be declared the winner. This created a competitive condition to compare to the non-competitive condition.

On the first occasion, participants signed informed consent before completing the CAPSS and demographic information. Participants were then taken to a small room and sat at a desk with a computer and the maze game on the screen. After being informed that the purpose was to complete as many mazes as possible in 10 minutes, each participant then completed the MTQ48 and was allowed one practice attempt at a maze under supervision. On confirmation that they were clear with the game and score recording requirements, they were left unsupervised for 10 minutes. On completion, MTQ48 and participant score sheets were collected. The participant information sheet and scoring sheet can be found in Appendix G.

After each participant completed the game for a second time, and a debriefing form with the actual aim of the study was presented. At this stage, all participants were provided with an opportunity to withdraw from the study.

#### 6.7.1.4. Data Analysis

Data gained from the CAPSS was screened for outliers, missing data, normality, and internal consistency. Honesty was assessed by viewing the screen recordings and relating this to the participant self-report results to identify discrepancies. Bivariate correlations between sportspersonship and honesty examined the associations between variables. Separate correlations by group were calculated and linear regression examined the proportion of honesty variance explained by sportspersonship. A paired samples *t* test explored competition effects.

### 6.7.2. Results

#### 6.7.2.1. Descriptive Statistics

CAPSS data was screened for outliers using Q-Q plots and presented no issues. There was no issue with missing data (< 0.1%) or univariate normality (skewness < 2, kurtosis < 7). Internal consistency estimates for CAPSS subscales were acceptable for officials ($\alpha = .70$), rules ($\alpha = .86$), opponent ($\alpha = .74$), game perspective ($\alpha = .75$), and overall sportspersonship ($\alpha = .77$). Reliability for legitimacy of injurious acts was low ($\alpha = .45$). This is likely due to the small sample size creating a lack of statistical variance for this subscale. In proceeding analyses, caution was used when interpreting the results from this subscale. Descriptive statistics are presented in Table 6.13.

#### 6.7.2.2. Condition Effects

To examine the effects of competition on honesty, discrepancy values were calculated by subtracting the reported value for maze time and moves from the actual value. A positive number therefore indicated over-reporting of success. Inspection of the descriptive statistics

and discrepancy values illustrated that no participants were dishonest about the amount of mazes completed, time taken for each maze, or moves made in the non-competitive condition. In the competitive condition, five of the 13 participants over-reported maze completions and three participants under-reported the total time and moves required. The low amount of incidents of over- or under-reporting however, meant that this was not significant in a paired-samples *t* test. Total mazes completed ($t(12) = 2.11$, $p = .06$, $d = 1.17$), total time ($t(12) = -.15$, $p = .17$, $d = -.08$), and total moves ($t(12) = -1.48$, $p = .17$, $d$ -.82) all demonstrated a non-significant trend towards increased dishonesty in the competitive condition.

**Table 6.13.**
**Descriptive statistics for CAPSS and honesty**

| Variable | Min | Max | Mean | SD | Skew | Kurt |
|---|---|---|---|---|---|---|
| Officials | 2.40 | 4.00 | 3.08 | .49 | .37 | -1.56 |
| Rules | 1.80 | 3.60 | 2.97 | .47 | -1.21 | 2.24 |
| Injurious acts | 3.00 | 4.00 | 3.40 | .32 | .28 | -.62 |
| Opponent | 2.75 | 3.50 | 3.12 | .26 | -.14 | -1.04 |
| Game perspective | 2.00 | 3.50 | 3.03 | .45 | -1.19 | 1.31 |
| Sportspersonship | 2.75 | 3.33 | 3.09 | .21 | -.42 | -1.50 |
| Total time reported T1 | 408.00 | 590.00 | 525.92 | 58.92 | -.72 | -.48 |
| Total moves reported T1 | 652.00 | 1644.00 | 1187.23 | 278.26 | -.31 | -.16 |
| Actual total time T1 | 408.00 | 590.00 | 525.92 | 58.92 | -.72 | -.48 |
| Actual total moves T1 | 652.00 | 1644.00 | 1187.23 | 278.26 | -.31 | -.16 |
| Mazes reported completed T1 | 4.00 | 9.00 | 6.54 | 1.90 | -.07 | -1.32 |
| Actual mazes completed T1 | 4.00 | 9.00 | 6.54 | 1.90 | -.07 | -1.32 |
| Total time reported T2 | 193.00 | 579.00 | 462.62 | 113.00 | -1.37 | 1.42 |
| Total moves reported T2 | 636.00 | 1868.00 | 1280.77 | 250.15 | 1.07 | 1.22 |
| Actual total time T2 | 312.00 | 579.00 | 504.77 | 68.70 | -1.96 | 4.97 |
| Actual total moves T2 | 972.00 | 1868.00 | 1280.77 | 250.15 | 1.07 | 1.22 |
| Mazes reported completed T2 | 6.00 | 10.00 | 8.54 | 1.20 | -.62 | .17 |
| Actual mazes completed T2 | 5.00 | 10.00 | 7.85 | 1.35 | -.65 | .51 |

*Note*. T1 = Time one, T2 = Time two.

#### 6.7.2.3. Sportspersonship Effects

To examine the effects of sportspersonship on dishonesty, Pearson's bivariate correlations were initially conducted. Only discrepancy values from the competitive condition were considered, as values were zero in the non-competitive condition. Results identified negative correlations between sportspersonship and dishonesty. Most significant

were the correlations for rules, where those who reported less respect for compliance towards rules were found to be more dishonest (Table 6.14).

**Table 6.14.**
**Bivariate correlations for sportspersonship and dishonesty**

| Variable | Total mazes | Total time | Total moves |
|---|---|---|---|
| 1. Compliant officials | -.27 | -.24 | -.23 |
| 2. Compliant rules | -.71** | -.77** | -.78** |
| 3. Injurious acts | -.03 | .04 | .04 |
| 4. Opponent | -.21 | -.18 | -.17 |
| 5. Game perspective | -.09 | -.04 | -.04 |
| 6. Sportspersonship | -.51 | -.48 | -.48 |

*Statistically significant at $p < .05$, **$p < .01$.

### 6.7.3. Discussion

The purpose of this study was to examine the effects of a competitive condition and sportspersonship on cheating. The results found that sportspersonship predicted dishonesty in the competitive condition. Most notably, compliance towards rules was the primary indicator of honesty. This study adds further experimental support for the criterion validity of the CAPSS.

This study represented a different scenario from that in Study 6, were sportspersonship was able to positively predict a prosocial act (cooperation). In this study, sportspersonship was able to predict the inhibition of an antisocial act (cheating). It is important to note that a compliant part of the model, rules, was the most significant predictor of a negative behaviour. This supports the notion that sportspersonship includes an inhibitive component, which involves refraining from demonstrating bad behaviour, and a more proactive component, which involves demonstrating good behaviour. This link to moral behaviour as discussed by Bandura (1999) has not previously been made to sportspersonship models, such as that by Vallerand et al. (1996, 1997), as they only include a compliant dimension.

The influence of compliance on honesty has potentially wide-reaching implications. One clear sporting connotation could relate to motivational climate. If good moral behaviour

is regularly demonstrated in an environment, performers may become more compliant. For example, Palou, Ponseti, Cruz, Vidal, Cantallops, Boràs et al. (2013) examined the effects of coach and parent motivational climate on acceptance of gamesmanship (adopting behaviours contrary to sportspersonship but not technically against the rules) and cheating in sport. They found that a task/mastery climate was negatively associated with gamesmanship and cheating, in that performers who more readily accepted cheating were less likely to join or thrive in a task climate and that the acceptance of cheating is likely to change over time due to the climate.

The strengths of this study compared to the previous study by Schwieren and Weichselbaumer (2010) lay in the use of parametric statistical analyses, available by the use of scaled measures. However, there were also some limitations. Most notably, the sample size was very small. This is a particular issue because it generated a small amount of variance, particularly with regards to displays of dishonesty. A repeated project, perhaps with more tempting rewards and a larger sample size would be a useful way to further examine relationships between sportspersonship and observed moral behaviour.

## 6.8. General Discussion

The purpose of this chapter was to explore the criterion-related of the CAPSS through two experimental studies. In both studies, CAPSS was able to positively predict positive behaviours, such as cooperation and honesty, and negatively predict negative behaviours, such as defection and dishonesty. In general, this chapter provides robust support for the criterion validity of the CAPSS.

The extent to which sportspersonship predicted cooperation in Study 6 was beyond the expected levels. It was particularly interesting to note that sportspersonship was a significantly greater predictor of behaviour than the accumulative and competitive conditions, moral competency, and trait EI. The implications of this are substantive. Firstly, it supports

the predictive capabilities of the CAPSS, which is valuable recognition for its use in future studies. Secondly, and more broadly, it suggests that individual differences are greater predictors of competitive behaviour than the conditions or reward. This is consistent with the results of Kuzmanovic et al. (2012), who found that increasing the payoff to add extra motivation alone did not affect the levels of cooperation. This opens a broader debate about the stability of sportspersonship, as it appears to be affected by the situation, but not driven by it. The correlations between cooperation and sportspersonship dimensions changed from being moderate to large in the accumulative condition to negligible and insignificant in the accumulative condition. This supports a clear effect on sportspersonship from the condition. However, the condition did not predict cooperation, meaning that is cannot be a determinant of sportspersonship, but perhaps more of a moderator. Future studies should examine more closely how situational variables influence moral decision making in sport.

The final study in the chapter examined dishonesty. The predominance of compliance towards rules as the main predictor of dishonesty provides further criterion-related support for the model of compliant and principled sportspersonship. One of the initial aims of this thesis was to develop a new model of sportspersonship that distinguished between levels. The difference in assessing the effects of sportspersonship on the demonstration of positive behaviour (e.g., cooperation) and the inhibition of negative behaviour (e.g., dishonesty) provides initial evidence that the CAPSS is able to distinguish between levels of sportspersonship.

# Chapter 7:
# General Discussion

## 7.1. Summary

This chapter provides an epilogue for the thesis, concluding the key findings from the studies contained in the preceding chapters. Further, context to the studies are applied through a discussion of the potential benefits of sportspersonship and how it can be developed. There is a discussion of the current position of sportspersonship theory and how this thesis contributes to its advancement. To conclude, the limitations of the work are discussed, followed by recommendations for future research.

## 7.2. Epilogue

The primary aim of this programme of research was to redefine the concept of sportspersonship and develop a new measure according to the redefinition. The introduction in chapter 1 highlighted the lack of acknowledgement of levels of sportspersonship by existing definitions. In particular, approaches in both structural developmental morality and moral behaviour had discussed this. It was clear then, that the new definition and measure should include a principled domain.

Attempts to measure sportspersonship have stalled since the publication of the multidimensional sportspersonship orientations scale (MSOS; Vallerand et al., 1997). There are however, many related measures, all with their relative strengths and weaknesses. Chapter two provided a critical review of these to better inform the development of a new scale.

Before developing a new model, chapter 3 reviewed and questioned the methods by which models are developed and assessed. There appears to be conflicting information in existing protocols. This chapter concluded with a suggested protocol based on recent research.

After a critical discussion of the MSOS (Vallerand et al., 1997), it was felt that despite the criticisms of the scale, some of the dimensions had merit. Therefore, chapter 4 contained Study 1, which sought to examine the factorial validity of the MSOS. The findings presented

a clear model, which provided a rationale for building on this model in terms of dimensions of rules, officials, social convention, and opponent. Chapter 4 also charted the initial development of the compliant and principled sportspersonship scale (CAPSS). Following the protocol for measure development identified in the methods chapter, Study 2 developed items, examined the content validity of them, and developed a 71-item scale. After exploratory factor analysis, a six-factor, 33-item model was developed.

The factorial validity of the CAPSS was examined in in chapter 5 and specifically, in Study 3, where the scale was refined further, resulting in a 24-item, five-factor model. This model withstood scrutiny after CFA, ESEM, reliability testing, and measurement invariance were assessed. Study 4 assessed the construct validity of the CAPSS and associations with motivation and self-report moral behaviour. Study 5 further examined the construct of sportspersonship and the construct validity of CAPSS by exploring the relationship with mental toughness and personality. It is important to assess the stability of any measure. Hence, Study 6 assessed this over a seven day test-retest protocol. The stability was very strong, indicating that CAPSS measurements are appropriately robust.

The final aspect of validity requiring measurement was criterion-related. To examine this, two experimental studies were designed and conducted in chapter 6. The first, Study 7, was a version of a prisoner's dilemma, which examined sportspersonship and cooperation in accumulative and competitive conditions. CAPSS subscales and overall sportspersonship positively predicted cooperation, supporting the criterion validity of the measure. Moreover, sportspersonship was a much stronger predictor of behaviour than the conditions, moral competence, and trait emotional intelligence. Study 8 further supported the criterion-related validity of the CAPSS by negatively predicting instances of cheating in competitive and non-competitive conditions.

This concluding chapter discusses the potential benefits of sportspersonship and identified methods for enhancing sportspersonship in individuals. There is then a discussion of the current understanding of sportspersonship, exploring how the work from this thesis advances it. At the end of the chapter, limitations of the compliant and principled model of sportspersonship are acknowledged, recommendations for future research is offered, and concluding remarks are presented.

## 7.3. Benefits of sportspersonship

Throughout the development and testing of a new model of sportspersonship, an important question remains; why be sporting? Although a body of research might support a theoretical model, for it to have realistic implications, it must have benefits. The benefits to sport at an organisational level are relatively straightforward to address. It seems logical at this level that the governors of a sport buy into the participation and popularity benefits. If sport is seen as positive for character virtues, then more young children will be encouraged to participate and the sport will thrive. Conversely, if public response to sport is to associate it with negative characteristics, parents will likely be less keen to push this route to their children. The more challenging level is to consider the benefits of sportspersonship at an individual level. In support of sport as a vehicle for moral development, Lemyre, Roberts and Ommundsen (2002) argued that competitive sport offers an important context for the psychological and moral development of young participants, whereby peer status, peer acceptance, and self-worth can be established. These benefits however, are unlikely to be sought after if it means compromising individual performance and/or success. A range of benefits and potential impact on personal success are discussed in this section including true competition, principled sportspersonship, and statistical inference about sportspersonship at levels of participation.

Previous models of sportspersonship have adopted a more compliant-based approach. Such a deficit-based approach contains a significant limitation from a motivational perspective. Specifically, if one is to deviate from sportspersonship behaviour, they are perhaps more likely to be successful. For example, rules in sport are written and enforced to intentionally make it more difficult to achieve one's aims. For example, a performer cannot foul an opponent to achieve their aim. Therefore, the clearest benefit for the participant is to demonstrate poor sportspersonship by fouling their opponent, as by definition, breaking the rules will make it easier to achieve one's goal than abiding by them. That is, of course, assuming that one's goal is only to win. Perhaps, instead, one's goal is more intrinsic and is focused on personal challenge, in which case the individual fails to achieve this by breaking the rules. This distinction is best discussed by Shields and Bredemeier (2009) in the publication of *true competition*.

True competition, Shields and Bredemeier (2009) argue, is internally cooperative and distinctive from decompetition. In this, Shields and Bredemeier discuss motivation and perspectives of a true competitor versus a decompetitor. Table 7.1 presents a clear contrast between these two approaches to competition.

Several aspects of this table are reminiscent of a principled domain of sportspersonship. In particular, the regulation component views rules not as definitive laws, but imperfect guides. The assumption here is that it then becomes the joint responsibility of the officials and competitors to contribute towards a fair contest by adopting a common-sense approach to their implementation. It could readily be argued therefore, that people high in sportspersonship are more likely to engage in true competition rather than decompetition. Shields and Bredemeier (2009) go on to imply a relationship between true competition and character. Considering that by an enormous majority, most individuals who participate in

sport never do so at an elite level, it seems sensible to consider the character virtues that can be developed from competitive sport participation.

**Table 7.1.**
**A contrasting summary of competition and decompetition**

| | **Competition** ***Striving with*** | **Decompetition** ***Striving against*** |
|---|---|---|
| Basic metaphor | Partnership | Battle or war |
| Motivation | Love of the game | Use of game |
| | Shared enjoyment | Thrill (at opponents' expense) |
| Goals | Learning and mastery | Domination and conquest |
| | Pursuit of excellence | Pursuit of superiority |
| View of opponent | Partner of enabler | Obstacle or enemy |
| Regulation | Rules are imperfect guides to fairness and welfare | Rules are partially tolerated restraints |
| | Officials are facilitators | Officials are opponents |
| Playing and winning | Focus is on process (contesting) | Focus is on outcome (winning) |
| Ideal contest | Balanced opposition | Dominated contest |
| | Tension, drama, story | Certainty of outcome |
| | Play and seriousness in balance | Seriousness overshadows play |
| | Positive emotions predominate | Negative emotions predominate |

Source: Shields & Bredemeier, 2009

The principled domain of sportspersonship is the most significant development in the model presented as part of this thesis. It is this aspect of sportspersonship that can move the conceptual understanding away from a cost-based association of sportspersonship. By cost-based, consider instances where to be sporting is to sacrifice an element or elements of performance in favour of a demonstration of good sportspersonship. Indeed, principled sportspersonship may be associated with several positive psychological attributes. Although it is not in the scope of this thesis to test these associations, it could be hypothesised that principled sportspersonship is positively correlated with emotional intelligence, mental toughness, and task-oriented coping. Study 4 demonstrated a positive correlation between game perspective and prosocial behaviour and task-orientation. Previous research has positively associated task orientation with more effort, especially in training (van de Pol, Kavussanu, & Ring, 2012). One can deduce a hypothesis therefore, that similar associations would extend to game perspective. The principled approach requires high levels of self-

awareness, which forms part of most emotional intelligence models (e.g., Goleman, 1998). To reach such a perspective, one must have previously consciously assessed their own behaviour, proving evidence of self-awareness. Moreover, Study 5 presented very little relationship with mental toughness, suggesting that that sportspersonship and mental toughness are mutually exclusive. Indeed, there was a small but significant positive correlation between sportspersonship and commitment, which is desirable for performance.

The relationship between sportspersonship and performance therefore appears to be minimal. It is suggested here that the seeming lack of a relationship is a reason to seek to develop sportspersonship, in that it will not harm performance in any way. The data reviewed in Study 5 of this thesis regarding skill level and sportspersonship is a crude assessment of this impact. Further investigation is required to determine if sportspersonship has a significant relationship with performance. For example, perhaps different types of sport, stress levels, coping ability, environment, group dynamics, and fatigue could affect this. To answer these questions is beyond the scope of this thesis but is certainly an interesting avenue for future research.

## 7.4. Developing sportspersonship

Having discussed the potential benefits of sportspersonship, it is now necessary to consider strategies for developing it. Identified below is a range of interventions that may be helpful in developing sportspersonship, particularly in young people.

### 7.4.1. Strategies for developing sportspersonship

Moral education can be delivered through specific interventions, formal programs or additional consideration during planning, delivery or reflection on existing sessions. A moral education programme was empirically investigated in elementary school children by Gibbons et al. (1995). The programme, *Fair Play for Kids,* was conducted over a period of seven months, offering classroom and field based games designed to improve the children's moral

conduct. Using an adapted version of the Horrocks' (1979) Prosocial Play Behavior Inventory (HPPBI), the authors reported significant pre- and post-test improvements in moral judgement, reason, and intention.

Miller et al. (1997) presented a sociomoral education program that they implemented in elementary schools over a 10-week period for at risk physical education pupils. The programme (presented in Table 7.2) draws on Kohlberg's (1976, 1984) stages of moralisation, which Shields and Bredemeier (1995) expanded on in physical activity. Rather than presenting the program as a curriculum for coaches to follow, it has been used here to consider a range of potential strategies; developing a mastery climate, developing a moral community, role taking, reflection and power transfer.

**Table 7.2.**
**Moral Action Processes, Sociomoral Education Goals, and Program Intervention Strategies**

| **Moral action process** | Perception and interpretation | Judgment and deciding | Choice | Implementation |
|---|---|---|---|---|
| **Program goal** | Empathy | Moral reasoning | Task orientation | Self-responsibility |
| **Intervention** | Cooperative learning | Moral community | Mastery climate | Power transfer |

Source: Miller, Bredemeier & Shields, 1997

#### 7.4.1.1. Developing a mastery climate

Clearly, there is a link between motivation and observed moral behavior (Boardley & Kavussanu, 2010). Therefore, by addressing motivational determinants, we can encourage sportspersonship. As task orientation appears to discourage antisocial behaviour and encourage prosocial behaviour, developing a task-involved mastery motivational climate is a possible way to enhance fair play in sport. Epstein (1988, 1989) promoted the use of the TARGET acronym as a practical way to develop a mastery climate. This identified six environmental characteristics; the nature of tasks, locus of authority, recognition, grouping, evaluation practices and the use of time. A representation of how these characteristics foster a motivational climate can be found in Table 7.3.

**Table 7.3.**
**'Targeting' a mastery climate**

| Mastery | | Performance |
|---|---|---|
| Challenging and diverse | **T**asks | Absence of variety & challenge |
| Students given choices and leadership roles | **A**uthority | No participation by students in decision making process |
| Private and based on individual progress | **R**ecognition | Public and based on social comparison |
| Cooperative learning and peer interaction promoted | **G**rouping | Groups formed on the basis of ability |
| Based on mastery of tasks and on individual improvement | **E**valuation | Based on winning or outperforming others |
| Time requirements adjusted to personal capabilities | **T**ime | Time allocated for learning uniform for all students |

Source: Adapted from Epstein, 1989

By varying and introducing new tasks, performers are consistently striving for mastery. This places the focus on personal development rather than social comparison. Leadership roles add responsibility to participants, which could include responsibility for fair play. Recognition should be conducted privately to avoid social comparison and be based on improved mastery of a task. Grouping is a common area for a coach to reflect on. It is important to encourage cooperative learning to provide each individual with the greatest opportunity to develop. When performers are competing for the same prize however (e.g., position on a team or a contract), this can be difficult. It is important to stress to performers in these situations that the best they can do is to improve as much as possible, and cooperative learning, which is a significant part of Miller et al.'s (1997) sociomoral education program, is an effective way to achieve this. Evaluation should be on mastery of skill rather than social comparison. For example, a sprinter running close to a personal best should be evaluated positively regardless of finishing position. To further foster a mastery climate, time should be flexible and adjusted to meet individual task needs. Therefore, training for an individual should only progress once a skill is mastered and not before. By targeting a task-oriented

mastery climate, coaches can encourage task orientation and therefore, more prosocial and less antisocial behaviours.

#### 7.4.1.2. Developing a moral community

The value of community and societies can be significant in shaping the behaviour of individuals within them. Power et al. (1989) refer to a synergy that compels members to adopt group shared norms. This value is noted in Kohlberg's (1976; 1984) model. The key difference between pre-conventional and conventional levels of morality is the appreciation of a social system. Pre-conventional morality identifies individualism and the conventional level has a more mutual understanding and a desire to keep the institution going. The development of a moral community therefore is a very effective way to encourage progression in moral maturity. Study 6 demonstrated an important link between reciprocity and sportspersonship. Miller et al. (1997) clarify that all people should refrain from doing bad things simply because they are people. This however, is augmented by membership of a group because members are motivated to avoid moral failings due to the profile, reputation and ethos of the group. A moral community is characterised by shared responsibility, trust, respect and care (Miller et al.). A determinant of much of this is brought about by group decision-making and problem-solving. Consequently, coaches may wish to consider how they can incorporate group dilemmas and problem-solving into their practice. For example, a conditioned game requiring a team to combine an amount of passes or for a set amount of team members to reach an individual target to score points for a team can help to develop the community because performers are working together for the same cause. There is enhanced responsibility to the group rather than individual performance. This is a particularly useful strategy when trying to encourage progression to conventional morality. Further, coaches could encourage groups to work together to solve a problem during practice to build a moral community. For example, by identifying a tactical error in a previous performance, rather

than prescribing a solution to players, the coach can ask groups of players to devise their own solutions.

#### 7.4.1.3. Role taking

Considering Kohlberg's (1976) stages of moralization, role-taking is an effective way to encourage progression at a pre-conventional level. By communicating with another from a variety of roles, including heightened and deficient responsibility (i.e. leading and following), participants can develop a greater awareness of the cognitive perspective of others (Hoffman, 1976). The first progression is awareness that everyone has their own interests, which is necessary for stage two of the model. Piaget's (1932, 1954) cognitive development stages suggest that this would typically occur around the ages of seven or eight. To progress to conventional morality requires empathy, which is identified by Miller et al. (1997), who studied a similar age group to Piaget's suggested ages. This can be achieved by taking deficient roles such as being on a weaker team or in a weaker or disadvantaged position. When coaching children in particular, putting participants in weaker roles can encourage empathy for teammates and opponents, which is an important step towards sportspersonship. Consequently, a greater awareness of others' feelings, agreements and expectations develops. Stage four requires enhanced acknowledgement of roles within a social system. Sporting environments in both training and competition provide a distinct social system between and within teams and with officials. A simple way to achieve this could be to swap offensive and defensive players periodically. This can enlighten a performer to the difficulties faced by teammates during play and reduce the potential for one section of a team to place unfair blame on another. As well as performance roles, there are different social roles adopted, particularly within teams, such as a captain, a highly-committed player, and a joker. Post-conventional or principled morality requires social contract, which goes beyond mere compliance to following self-chosen principles. This level of morality requires significant

experience, which can be gained more quickly through role taking, as putting oneself in the place of various people exposes the participant to moral conflict from which they can test and refine their principles as they develop. One way of exposing participants to such moral conflict is to ask them to take the role of an official or coach. In these positions there are instances where one must make a decision that they know will bring about a negative response for some while pleasing others. This is good practice for making decisions based on moral principles.

#### 7.4.1.4. Reflection

To play fairly firstly requires an awareness of one's own approach and behaviour. This can be most efficiently achieved through reflection. Structured reflection is used frequently in occupations like nursing (Johns, 1994) and teaching (Gibbs, 1988) and has been advocated for use by all practitioners (Murdoch-Eaton, 2002). Such educational approaches are common in sport psychology, as performance profiling and mental skills training regularly identifies existing and desired behaviours through self-evaluation. It is through post-performance reflection that performers can acquire heightened awareness, by moving from autopilot to critical reflection (van-Aswegen, Brink, & Steyn, 2000). From here, coaches are encouraged to include fair play principles in goal setting, particularly at team level. It is important to realise that principled morality is not something that is naturally obtained; it requires deep reflection and behaviour modification. In the next section, several other benefits of achieving this level of moral maturity so it is of significant value to the performer are proposed. Consequently, coaches should take opportunities to educate performers in fair play by identifying situations of moral conflict when they arise. For example, if a performer chooses to act in particularly positive or negative way, this can be highlighted to others to encourage reflection. It is through exposure to these moral decision

situations that arouses internal contradictions in one's reasoning structure. Therefore, exposure to them and reflection on them is crucial for development.

Some coaches may wish to formalise or structure the reflection process, encompassing several or all acts of performance, including fair play. This is a process that could also be adopted in coach education programs, particularly those aimed at coaching children and youth sport. Coaches are encouraged to develop their own reflection templates to meet the reflective ability, time, and need of performers. This may include, for example, reflecting on specific positive and negative points during play, effort and persistence in training, the progress towards set goals, managing concentration, and physical fitness.

#### 7.4.1.5. Power Transfer

Ultimately, individuals are much more likely to play fairly if it is in their own interest. If fair play becomes one's own responsibility and that person is accountable for deviations away from fair play, they are more likely to uphold the principles of it. Miller et al. (1997) found that heightened responsibility encouraged a greater perspective of long-term group benefits and even self-sacrifice to achieve this. As identified in Kohlberg's (1976) model, post-conventional (or principled) morality adopts a prior-to-society view. That is, that one is guided by their knowledge of right and wrong towards an individual, regardless of societal norms or values. By transferring power, and therefore responsibility to participants, a coach is enabling each participant to develop their own principles and become self-determined. A transition from conventional to principled morality can be observed when an individual is prepared to follow these newly-acquired, self-chosen principles above adhering to social norms. This could be demonstrated by a performer being prepared to stand apart from others to do what they believe is the right. From a practical perspective, examples of power transfer could include allowing performers to make a choice over training practices, encouraging performers to conduct a post-match/event analysis, or providing performers with the option to

take pre-match team talks. There are two important points to consider here; Firstly, power transfer is only appropriate when performers are already functioning at a conventional level of morality. Secondly, it is important that the coach identifies and acknowledges instances of self-chosen principled decisions.

Strategies identified here for enhancing fair play are associated with other benefits, such as enhanced intrinsic motivation and reward. While studying work performance, Izadikhah and Jackson (2011) suggest that a mastery approach positively and consistently predicts higher levels of rewarding climates with regard to recognition of effort and enjoyment. Ultimately, reward, including intrinsic rewards, is a key motivator for ones participation in sport. Logically, therefore, such a rewarding climate is one that individuals will strive for. This may have numerous other advantages such as trust, improved mental wellbeing and non-sporting benefits. Though further research is required in this area, a trusted individual may be looked upon favourably by officials and governing bodies. Izadikhah and Jackson's study supports benefits of a rewarding climate. There may also be non-sporting benefits, as the moral maturity required to reach a principled level demonstrates a healthy perspective. By restructuring ones moral approach within sport to develop heighted moral maturity, this could have significant benefits in everyday life.

#### 7.4.1.6. Summary of Strategies

Research around morality in sport and sportspersonship will continue over the coming years. As such, the strategies suggested here are not exhaustive. However, there are several clear themes emerging. Firstly, there is significant research support (e.g., Boardley & Kavussanu, 2010) regarding the predictive ability of goal orientations on positive and negative sport behaviours. Consequently, coaches should strive to foster a task-involved mastery climate. As part of this climate, coaches can develop a moral community incorporating role taking to form empathy. These strategies are sufficient to enable

performers to progress to a conventional level of morality. Through reflection and empathy, participants develop their own social system and informal social contracts. From here, further reflection is necessary to establish the awareness required before an individual can cultivate their own principles. The greatest challenge for a coach in developing a progressive moral community is to avoid simply telling performers what is right and wrong but to empower them to develop a principled level of morality. In time, and with heightened moral maturity, it is these principles that drive social systems and enables the moral community and mastery climate to flourish. Rather than systematically identifying aspects of the compliant and principled model and associated development strategies, the suggestions provided here are intended to holistically promote sportspersonship. The most effective mechanism is to promote principled sportspersonship, which establishes the values by which more compliant components will likely adhere in the right context.

## 7.5. Position of Sportspersonship Theory

### 7.5.1. Current Understanding of Sportspersonship and Related Theory

Research on sportspersonship has been a series of activity followed by stagnation since early studies into observed behaviours (Crawford, 1957) and attitudes towards participation (Webb, 1969). The most significant development in this time was the multidimensional definition of sportspersonship as orientations by Vallerand and colleagues (1996, 1997). In this time, starting with Kohlberg's (1958) initial investigation into moral development, there has been a wealth of literature in developmental psychology that has remained largely exclusive from sportspersonship theory. Throughout this thesis, there are attempts to bring these two valuable approaches together to enhance understanding of sportspersonship. This has been achieved by developing a new model that considers compliant and principled approaches.

### 7.5.2. Contribution of this Thesis to Theoretical Understanding

The compliant and principled model of sportspersonship is the first to draw on the social psychological approaches and moral development. Vallerand et al.'s (1997) model was tested and key compliant elements of this were used to inform the new model. Additionally, the model was informed by structural developmental research from Bredemeier (1985), who examined the legitimisation of injurious acts. Finally, the work on moral development from theorists like Kohlberg (1976), Haan (1984), and Rest et al. (1999) added a new principled domain. The inclusion of the principled domain presents a more holistic approach towards sportspersonship that ties together very different psychological approaches from the cognitive developmental work of Kohlberg to the more situational approach toward moral behaviour of Bandura (1991; 1999). While this is a significant step forward in the conceptualisation of sportspersonship, it has several practical and theoretical limitations, which are discussed below.

### 7.5.3. Relationship with Philosophical Literature

Sportspersonship has received much attention in philosophical literature. To present a thorough and rounded understanding of the concept, useful insights can be obtained through consultation of such writings. The first notable modern work on defining the concept is widely attributed to Arnold (1983), who referred to sportspersonship as a form of social union, the promotion of pleasure, and a form of altruism. Conceptualisations of sportspersonship as a form of altruism are somewhat removed from the principled domains discussed in this thesis. Arnold himself was unconvinced by the clarification of the concept, noting that the term "sportsmanship" and its relation to sport and morality is more complex and subtle than was typically considered. Debates of sportspersonship and its relation to moral virtue has continued to be a form of philosophical discourse. For example, Sessions

(2004) refers to “sportsmanship as honor”. However, others contend that any relationship between sportspersonship and moral virtue is merely coincidental (e.g., Nlandu, 2008).

Pierce (2000) put forward a convincing and pragmatic argument for sportspersonship as an outcome of thirdness. Similar to the notion of bracketed morality (Bredemeier, 1994, 1997), Pierce noted that sportspersonship is local to the demands of each particular sporting activity. The reference to “thirdness” is predicated on the idea that, first, each individual brings into the game their own understanding of an experience. Second, there is confrontation with the perceived experience of others, and third, where sportspersonship exists, a generalised experience as a result of the first and second experiences is reconciled with past, present and future experiences.

Although scholars engaged in the philosophy of sport appear to be as equally at odds as scholars in psychology of sport regarding a definition of sportspersonship, there are some striking similarities. Most notably, is the rhetoric around the extent to which sportspersonship is morally-derived or a social construct. In the compliant and principled model, principled sportspersonship is rooted in moral development literature, while approach towards opponent, rules, and officials is much more psycho-social. Therefore, the model is an attempt to provide a reasoned understanding of a concept rather than pursuing a methodological ideal.

## 7.6. Limitations of the Compliant and Principled Model

The compliant and principled model of sportspersonship developed as part of this thesis presents a step forward in understanding sportspersonship and being in a position to better develop interventions. However, there are several important limitations worthy of discussion. Specifically, these refer to the absence of etiquette, and the lack of support for a higher-order model. Finally, a reflection is offered on the use of the MSOS to underpin concepts of the new model.

### 7.6.1. The Absence of Etiquette

Sportspersonship is often colloquially understood as abiding by unwritten rules. Indeed, philosophical discussion of sportspersonship understands it to be about honour (Sessions, 2004), a social union (Arnold, 1983), or a mediating concept between the game and the individual (Pierce, 2000). That the compliant and principled model does not acknowledge etiquette therefore, should be considered as a limitation.

During the development of the original model through exploratory factor analysis in Study 3, a seventh factor was considered. This factor was game value, informed somewhat by Vallerand et al.'s (1996; 1997) social convention subscale. However, loadings were weak and as this only contained three items, the reliability was low and it was dropped. On reflection, it would have been worthwhile developing more items for this subscale before confirming the model. This is perhaps symptomatic of a fairly rigid approach towards the retention of items. In psychometrics, the researcher is continuously tasked with making a decision on which items to retain. A loose approach that keeps more items makes it difficult to obtain a satisfactorily statistical fit to a model. Conversely, an overly-rigid approach can reduce the conceptual breadth of the scale. Perhaps the approach taken at times in the scale construction was overly rigid, which meant that items were removed rather than reconceptualised.

The social convention factor included in Vallerand et al.'s (1996; 1997) model is very much about compliance. The premise being that a convention is considered as the expected thing to do, therefore this requires adherences. The idea of game value or etiquette was a little more proactive, and centred on the extent to which individuals value the ethos of the game. By demonstrating a genuine regard for the good of the sport, a performer would be holding a principled approach towards sportspersonship. This is something that could be examined further if the CAPSS model were to evolve.

### 7.6.2. The Lack of Support for a Higher-order Model

The model clearly demonstrates support for a distinction between compliant and principled approaches toward sportspersonship. This is achieved by the inclusion of game perspective, a principled domain of sportspersonship, which is a unique attribute in the model. However, while the approach towards the opponent subscale was clearly related to this, support for a higher-order model was equivocal. Some of the factor correlations actually indicate a stronger relationship between game perspective and compliant factors than with the opponent factor. Further, the two-factor model, subjected to CFA and ESEM, failed to demonstrate an acceptable fit. It is interesting the note that the two-factor ESEM clearly distinguished between respect for officials and all other dimensions. It is not possible to ascertain why without further research, but perhaps a difference exists between the ability to empathise with an opponent rather than an official.

There is some evidence to support the inclusion of the opponent factor as a principled aspect of sportspersonship, and the higher-order model demonstrated a similar fit to the five-factor model. This is another aspect of the model that could be further developed. Indeed, the inclusion of a game value or etiquette dimension in the principled domain could well provide a useful solution to this limitation.

### 7.6.3. The Use of the MSOS

Guidance provided to sport psychologists and sport coaches for item generation for the compliant and principled sportspersonship scale was informed by several of the domains from the multidimensional sportspersonship orientation scale (MSOS; Vallerand et al., 1997). Often, populations likely to complete the questionnaire when it is developed are interviewed to obtained ideas for items. Indeed, this is the approach used by Vallerand et al. (1996, 1997). Alternatively, an option could have been to conduct cognitive interviews with psychologists and coaches. The process of using a cognitive interview and subsequent interaction analysis

is recommended by several authors (e.g., Nápoles-Springer, Santoyo-Olssen, O'Brien, & Stewart, 2006). It is therefore appropriate to consider this as a potential limitation within the thesis.

The decision to not undertake interviews was taken after the encouraging results from the MSOS analysis in Study 1. Had this not offered an interpretable model, a more exploratory study in the form of cognitive interviewing would have been necessary. However, as a framework already existed that appeared to be relatively coherent, it was decided that this should be expanded and therefore, no exploratory work was necessary. On reflection, perhaps interviewing could have supplemented the existing framework from the MSOS and may have offered a more novel interpretation of sportspersonship.

## 7.7. Recommendations for Future Research

### 7.7.1. Morality in Sport

The recent flurry of research around morality in sport and meant that existing knowledge has become quite divergent. Sportspersonship is an attempt to understand one's holistic view of how they want to, and do act in sport. This is what Vallerand et al. (1996, 1997) refer to as an orientation. It falls between moral reasoning/functioning and moral behaviour. Historically, moral reasoning has struggled to predict actual behaviour. The studies presented in chapter six of this thesis demonstrate the ability of sportspersonship to achieve this. Existing efforts to examine behaviour (e.g., Kavussanu and Boardley, 2010) are useful tools for cross sectional studies with large sample sizes, perhaps employing structural equation modelling. This is not however, an assessment of actual behaviour. Studies wishing to thoroughly examine moral behaviour should do so through observation.

The model of compliant and principled sportspersonship is the first model to genuinely draw on structural-development and psycho-social approaches. This makes the model distinct from all other methods of exploring the concept. Consequently, future research

should examine existing understanding of related concepts with reference to compliant and principled sportspersonship. For example, there is a sound body of research on bracketed morality (e.g., Bredemeier, 1994, 1997), where moral behaviour is deemed to alter between a sport environment and a non-sport environment. Researchers should examine the extent to which sportspersonship changes in different environments, as some components may be more stable than others. For example, one would expect game perspective to remain relatively stable, but legitimacy of injurious acts may be more changeable, as it is reasonable to expect some people to legitimise such acts in sport more than they would in a work, education, or social environment.

### 7.7.2. Future Development of the Compliant and Principled Sportspersonship Model

As identified by the limitations, the CAPSS is not a perfect scale and the compliant and principled model is missing an etiquette-like domain. Future development of the model should seek to test a domain that identifies the extent to which performers prioritise the good of the game above competing motivations. This could be achieved by interviewing coaches, athletes, and psychologists to ultimately, generate a list of potential items and add them to the CAPSS to develop the new dimension.

All psychometric measures should evolve as time passes as a matter of good practice. New research presents fallibilities within measurement scales that should be addressed rather than ignored. Of the existing subscales, the opponent one presents factor loadings and reliability estimates that are at the lower end of acceptability. Although these are not problematic, the scale could perform better from a psychometric perspective with some additional items. In time, this would be a good way to further evolve the CAPSS.

### 7.7.3. Sportspersonship Outside of Sport

Sportspersonship as a concept is one that is viewed as positive not only within a sporting environment, but in business and education also. There is a plethora of research on

teamwork, moral atmosphere, organisational citizenship behaviour, and integrity in the occupational literature that a sportspersonship model could contribute to. At present, the model and its items are highly sport-focused. However, an alternative non-sport version could be created by a similar protocol. The legitimacy of injurious acts would be removed and perhaps social convention and integrity incorporated. Respect for officials would become respect for authority figures, rules maintained, and approach towards opponent would become more about colleagues and competitors. Perspective would still play a key role in this new model and provide the underpinning principled approach to sportspersonship. After previous research (e.g., Bredemeier, 1994, 1997) has posited bracketed morality within a sporting context, it would be interesting to examine the extent to which the compliant and principled model is spatially distinct from attitudes and behaviours outside of sport.

Should a generic, non-sporting version of the compliant and principled sportspersonship model be developed, there is significant potential to establish this within the organisational citizenship behaviour literature. As identified in Study 5, OCB is a frequently used concept in occupational psychology (Podsakoff et al., 2000). One of the seven aspects of Organ's (1988) model of OCB is sportsmanship. This is understood in very compliant terms in the occupational literature. Generally, being a good sport is about maintaining a positive attitude even when in adverse situations. The highly sporting individual in this context, referred to as a "good soldier" by Organ (1988, 1990), is one who does of them what is requested from those above them in a hierarchy. The introduction of principled sportspersonship could add a new dimension to the OCB literature.

## 7.8. Conclusion

The purpose of this thesis was to examine existing literature and measures on sportspersonship, develop a superseding model, a multidimensional measure, and to examine the validity of this. A series of eight studies presented have charted the development and

subsequent validation of the compliant and principled sportspersonship scale. This scale has been robustly examined in terms of content-, construct-, and criterion-related validity. The outcome of the thesis is a model of compliant and principled sportspersonship made up of five dimensions; respect for officials, compliance towards rules, not legitimising injurious acts, approach towards opponent and a principled game perspective. This is assessed using a 24-item, five-factor scale, the CAPSS. After robust scrutiny of the scale, it is suggested here that it is appropriate for use in future research. Moreover, the compliant and principled model presents a coherent and empirically sound model of sportspersonship.

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# Appendix A: Descriptions for the Compliant and Principled Sportspersonship Scale (CAPSS)

Thank you for agreeing to aid in the development of items for the compliant and principled sportspersonship scale (CAPSS). The information below is provided to help you consider aspects of sportspersonship. Some of these are compliant in nature. This means adopting behaviours, attitudes, or reasoning that is widely expected. To not adopt such behaviours, attitudes or reasoning would be considered as unsporting. Some are principled. This means that not adopting the behaviours, attitudes or reasoning is not considered unsporting, but adopting them would be considered above expectation. You are also welcome to include any items that you believe to be related to sportspersonship, regardless of the information below.

There is no prescribed amount of items for you to develop. Don't worry too much about refining the wording so it is perfect, just write down questions, statements, or even examples of what you consider an important element of sportspersonship.

## Compliant Opponent

Refers to the adherence of expectations toward the opponent. To comply with these expectations refers to instances where a performer values the welfare of their opponent enough to forgo strategic advantage.

Effectively, this subscale means treating the opponent as you are expected to rather than going above these expectations. For example, not injuring them to slow them down.

**Key terms:**

- Reluctantly
- Distraction (negative)
- Injuring (negative)
- Intimidation (negative)

## Compliant Convention

Refers to the adherence of expectations toward social convention. To comply with these expectations refers to instances where a performer values social convention enough to forgo strategic advantage.

This subscale is about doing what you should do beyond the rules. For example, a footballer throws the ball back to the opposing team after they kick it out to enable a player to get treatment. This isn't anything remarkable, it's simply complying with expectation.

**Key terms:**

- As I should
- As expected
- The done thing

## Compliant Rules

Refers to the adherence of the rules. Such compliance refers to adherence to rules even if the performer does not appreciate their importance.

This subscale is simply not breaking the rules.

**Key terms**

- All rules
- Obey
- Cheat (negative)
- Break rules (negative)

## Compliant Officials

Refers to the adherence of expectations toward respect for officials. To comply with these expectations refers to instances where a performer demonstrates genuine respect for the official.

This subscale is simply showing respect for the officials.

**Key terms**

- Respect decisions
- Question decisions (negative)
- Argue (negative)
- Swear (negative)

## Principled Opponent

Refers to an individual proactively putting the best interests of the opponent ahead of winning. To proactively ensure the interests of the opponent refers to instances where a performer is prepared to hinder their chances of winning to help an opponent.

Examples of this are when someone does go above and beyond normal expectations to help their opponent, such as stopping play when many wouldn't or going out of your way to help an opponent.

**Key terms**

- Value opponent
- Proactively help opponent

## Principled Game Ethos

Refers to an individual proactively putting the best interests of the game ahead of winning. To proactively ensure the interests of the game refers to instances where a performer is prepared to hinder their chances of winning for the good of the game.

Examples of this are when someone does go above and beyond normal expectations for the good of the game, such as a batsman walking in cricket or a golfer calling their own foul.

**Key terms**

- Good of the game
- Spirit of the game

## Principled Game Perspective

Identifies the performer's perspective on the extent to which the game is 'win at all costs'. It is principled, as an individual's perspective is based on their principles rather than expectation. Game perspective refers to instances where a performer believes that potential scenarios transcend the importance of winning.

Effectively, this is seeing the game itself as more important than the result i.e. having a perspective on the importance of winning.

**Key terms**

- Win at all costs
- Good winner
- Good loser
- Rather lose than…
- More important

**Thank you for participation.**

# APPENDIX B: Initial Scale Development

The initial scale development team identified a total of 86 items.

### Stage 1

The following items were removed, as they score less than .75 on the CVI:

- Rules are not made to be broken
- I would never question a referee
- I give the ball back to an opponent if they stop play for an injury
- I stop play when an opponent is hurt
- I defend my teammates
- I wouldn't cheat even if it was helpful to me
- Nice guys don't finish last
- I can play hard and fair
- When I play, I know it's only a game
- If you don't play by the rules, it is not worth playing
- The referee tries their best and I respoect that

### Stage 2

The following items were removed, as they were deemed to similar to existing items:

- I stick to all the rules in my sport
- I do not use bad language towards the officials
- I never try to get revenge for something an opponent has done
- It is important to play a game in the right spirit

# Appendix C: Compliant and Principled Sportspersonship Scale-71

**Sex:** Male ☐ Female ☐ **Age:** _____

**Main Sport Involved with:** _____ **Years involved in sport:** _____

**Current level of participation (please tick):**

| **Recreational** ☐ | **Club** ☐ | **Semi-Professional** ☐ | **Professional** ☐ |
|---|---|---|---|
| Play in local leagues<br>Play with friends<br>sport<br>Play for fun | Play for established club<br>Compete in regional leagues | Compete at national level<br>Receive payment for performance | Full-time<br>Highest level in |

## *Instructions*

Please read each statement below and for each indicate the extent to which you agree. You should indicate this by circling the appropriate number between 1 "Strongly Disagree" and 4 "Strongly Agree".

Please answer all questions honestly.

| | Strongly Disagree | Disagree | Agree | Strongly Agree |
|---|---|---|---|---|
| 1. I never break the rules of my sport | 1 | 2 | 3 | 4 |
| 2. I adhere to the social expectations in my sport | 1 | 2 | 3 | 4 |
| 3. If the wrong decision is made, I try to correct it | 1 | 2 | 3 | 4 |
| 4. I would not use intimidation to get the better of my opponent | 1 | 2 | 3 | 4 |
| 5. I never argue with a referring decision even if I feel it is wrong | 1 | 2 | 3 | 4 |
| 6. I do not believe in winning at all costs | 1 | 2 | 3 | 4 |
| 7. I abide by all of the rules in my sport | 1 | 2 | 3 | 4 |
| 8. I never argue with officials | 1 | 2 | 3 | 4 |
| 9. I would go out of my way to help an injured opponent | 1 | 2 | 3 | 4 |
| 10. It is important to show humility after winning | 1 | 2 | 3 | 4 |
| 11. It is wrong to cheat in order to win | 1 | 2 | 3 | 4 |
| 12. I would not foul an opponent to gain an advantage | 1 | 2 | 3 | 4 |
| 13. I call my own fouls | 1 | 2 | 3 | 4 |

| | Strongly Disagree | Disagree | Agree | Strongly Agree |
|---|---|---|---|---|
| 14. It is important to be a good winner | 1 | 2 | 3 | 4 |
| 15. I always shake hands with my opponent after the game | 1 | 2 | 3 | 4 |
| 16. I respect the official's decision even when it is wrong | 1 | 2 | 3 | 4 |
| 17. I am responsible for my opponent's well-being | 1 | 2 | 3 | 4 |
| 18. It is wrong to fake an injury to gain an advantage | 1 | 2 | 3 | 4 |
| 19. It is more important to be dignified rather than purely focusing on winning | 1 | 2 | 3 | 4 |
| 20. I do things for the good of the game | 1 | 2 | 3 | 4 |
| 21. It is wrong to take advantage of a situation if a referee or umpire is unsighted | 1 | 2 | 3 | 4 |
| 22. I value the well-being of my opponent above winning | 1 | 2 | 3 | 4 |
| 23. I would never cheat in order to win | 1 | 2 | 3 | 4 |
| 24. It is wrong to distract an opponent to gain an advantage | 1 | 2 | 3 | 4 |
| 25. The principles of fair play are the most important thing to me | 1 | 2 | 3 | 4 |
| 26. I always conform to the unwritten etiquette | 1 | 2 | 3 | 4 |
| 27. I would never cheat even if I thought it would help me win | 1 | 2 | 3 | 4 |
| 28. I never vent my frustrations on match officials | 1 | 2 | 3 | 4 |
| 29. I would rather be respected for my actions than merely winning | 1 | 2 | 3 | 4 |
| 30. I would not intentionally injure an opponent to gain advantage | 1 | 2 | 3 | 4 |
| 31. It is important to me to show respect to my opponent | 1 | 2 | 3 | 4 |
| 32. I do not swear at officials | 1 | 2 | 3 | 4 |
| 33. It is wrong to intimidate an opponent | 1 | 2 | 3 | 4 |
| 34. I respect the social conventions of my sport | 1 | 2 | 3 | 4 |
| 35. I always obey the rules of my sport | 1 | 2 | 3 | 4 |
| 36. It is more important to do what is right than to win | 1 | 2 | 3 | 4 |
| 37. I refrain from tactics that could injure my opponent | 1 | 2 | 3 | 4 |
| 38. I will always congratulate my opponent on his or her victory | 1 | 2 | 3 | 4 |

| | Strongly Disagree | Disagree | Agree | Strongly Agree |
|---|---|---|---|---|
| 39. I never attempt to deceive referees / umpires | 1 | 2 | 3 | 4 |
| 40. I would not bend the rules to win | 1 | 2 | 3 | 4 |
| 41. I would never seek revenge on an opponent | 1 | 2 | 3 | 4 |
| 42. I truly respect a worthy opponent | 1 | 2 | 3 | 4 |
| 43. I play to the 'spirit of the law' not the 'letter of the law' | 1 | 2 | 3 | 4 |
| 44. I do what I am supposed to for the good of the game | 1 | 2 | 3 | 4 |
| 45. It is wrong to wind up an opponent to inhibit their performance | 1 | 2 | 3 | 4 |
| 46. At times I will acknowledge my opponents good play | 1 | 2 | 3 | 4 |
| 47. Rules are made to be obeyed in the interests of fair play | 1 | 2 | 3 | 4 |
| 48. I would rather be respected for my actions than merely winning | 1 | 2 | 3 | 4 |
| 49. I obey the unwritten rules of my sport | 1 | 2 | 3 | 4 |
| 50. I listen to the officials | 1 | 2 | 3 | 4 |
| 51. I play hard but make sure that I do not injure my opponent | 1 | 2 | 3 | 4 |
| 52. I consider myself a good loser | 1 | 2 | 3 | 4 |
| 53. It is not my place to disagree with officials | 1 | 2 | 3 | 4 |
| 54. It is wrong to test the boundaries to see what I can get away with | 1 | 2 | 3 | 4 |
| 55. I never ask a referee to explain his / her decision | 1 | 2 | 3 | 4 |
| 56. I would never intentionally foul an opponent | 1 | 2 | 3 | 4 |
| 57. I would go out of my way to congratulate an opponent | 1 | 2 | 3 | 4 |
| 58. I would rather lose with grace than win with dishonesty | 1 | 2 | 3 | 4 |
| 59. The official's decision is final and I accept that | 1 | 2 | 3 | 4 |
| 60. If I make a foul that the referee couldn't see I would admit it to the referee | 1 | 2 | 3 | 4 |
| 61. I would rather play fair and lose than cheat and win | 1 | 2 | 3 | 4 |
| 62. I would not attempt to distract opponents by 'sledging' | 1 | 2 | 3 | 4 |
| 63. I would always shake hands after a match regardless of what had occurred | 1 | 2 | 3 | 4 |
| 64. It is wrong to break the rules to gain a tactical advantage | 1 | 2 | 3 | 4 |

| | Strongly Disagree | Disagree | Agree | Strongly Agree |
|---|---|---|---|---|
| 65. Winning is not always the most important part of sport | 1 | 2 | 3 | 4 |
| 66. I would never con the referee to win | 1 | 2 | 3 | 4 |
| 67. I do 'the right thing' by my opponent | 1 | 2 | 3 | 4 |
| 68. I would not put extra pressure on the officials if I thought it would help me to win | 1 | 2 | 3 | 4 |
| 69. It is important that the game is played in the right spirit | 1 | 2 | 3 | 4 |
| 70. It is more important to play fair than to win | 1 | 2 | 3 | 4 |
| 71. I would not intentionally intimidate an opponent through fouling | 1 | 2 | 3 | 4 |

**Thank you for your participation**

# Appendix D: Compliant and Principled Sportspersonship Scale-24

**Sex:** Male ☐ Female ☐ **Age:** _____

**Main Sport Involved with:** _____ **Years involved in main sport:** _____

**Current level of participation (please tick):**

| **Recreational** ☐ | **Club** ☐ | **Semi-Professional** ☐ | **Professional** ☐ |
|---|---|---|---|
| Play in local leagues | Play for established club | Compete at national level | Full-time |
| Play with friends | Compete in regional leagues | Receive payment for performance* | Highest level in sport |
| Play for fun | | *in some sports | |

## *Instructions*

Please read each statement below and for each indicate the extent to which firstly in section 1, you believe how you *ought* to behave. That is, do you believe that this is a good behaviour or attitude? You should indicate this by circling the appropriate number between 1 'Strongly Disagree' and 4 'Strongly Agree'.

Secondly, indicate the extent to which you *actually* behave in section 2. Again, this should be indicated by circling the appropriate number between 1 'Strongly Disagree' and 4 'Strongly Agree'.

Please answer all questions honestly.

| | **Strongly Disagree** | **Disagree** | **Agree** | **Strongly Agree** |
|---|---|---|---|---|
| 1. I never break the rules of my sport | 1 | 2 | 3 | 4 |
| 2. I never argue with a referring decision even if I feel it is wrong | 1 | 2 | 3 | 4 |
| 3. I do not believe in winning at all costs | 1 | 2 | 3 | 4 |
| 4. I abide by all of the rules in my sport | 1 | 2 | 3 | 4 |
| 5. I will always congratulate my opponent on his or her victory | 1 | 2 | 3 | 4 |
| 6. I would rather be respected for my actions than merely winning | 1 | 2 | 3 | 4 |
| 7. I would not intentionally injure an opponent to gain advantage | 1 | 2 | 3 | 4 |
| 8. I never argue with officials | 1 | 2 | 3 | 4 |
| 9. I would not bend the rules to win | 1 | 2 | 3 | 4 |
| 10. It is more important to do what is right than to win | 1 | 2 | 3 | 4 |
| 11. At times I will acknowledge my opponents good play | 1 | 2 | 3 | 4 |
| 12. I refrain from tactics that could injure my opponent | 1 | 2 | 3 | 4 |

| | Strongly Disagree | Disagree | Agree | Strongly Agree |
|---|---|---|---|---|
| 13. I would rather lose with grace than win with dishonesty | 1 | 2 | 3 | 4 |
| 14. I never vent my frustrations on match officials | 1 | 2 | 3 | 4 |
| 15. I truly respect a worthy opponent | 1 | 2 | 3 | 4 |
| 16. I play hard but make sure that I do not injure my opponent | 1 | 2 | 3 | 4 |
| 17. I do not swear at officials | 1 | 2 | 3 | 4 |
| 18. Winning is not always the most important part of sport | 1 | 2 | 3 | 4 |
| 19. It is wrong to test the boundaries to see what I can get away with | 1 | 2 | 3 | 4 |
| 20. I would go out of my way to congratulate an opponent | 1 | 2 | 3 | 4 |
| 21. I would never intentionally foul an opponent | 1 | 2 | 3 | 4 |
| 22. The official's decision is final and I accept that | 1 | 2 | 3 | 4 |
| 23. I always obey the rules of my sport | 1 | 2 | 3 | 4 |
| 24. It is more important to play fair than to win | 1 | 2 | 3 | 4 |

**Thank you for your participation**

## Scoring Key

Officials: 2, 8, 14, 17, 22
Rules: 1, 4, 9, 19, 23
LIA: 7, 12, 16, 21
Opponent: 5, 11, 15, 20
Game Perspective: 3, 6, 10, 13, 18, 24

# Appendix E: Motivation, Sportspersonship and Moral Behaviour in Sport

## Introduction

Contained in this pack is a selection of questions in three sections to assess psychological attitudes and orientations, beliefs and self-reported moral behaviour. This data is required for research purposes, therefore it is of the utmost importance that you answer all questions honestly.

All information is provided is strictly confidential or anonymous.

## Instructions

Please take your time to read the requirements for each section and ensure that you understand the scoring scale (e.g. 1-4 or 1-5). Take your time on each section to consider the most appropriate and genuinely truthful answer.

On all items you are asked to indicate your level of agreement with a statement. Please do this by circling the appropriate number. This must be a whole number and not somewhere in between two numbers.

Please provide just one response per question.

## About You

**Sex:** Male ☐ Female ☐ **Date of Birth:** _____

**Main Sport Involved with:** _____ **Years involved in main sport:** _____

**Current level of participation (please tick):**

| **Recreational** ☐ | **Club** ☐ | **Semi-Professional** ☐ | **Professional** ☐ |
|---|---|---|---|
| Play in local leagues | Play for established club | Compete at national level | Full-time |
| Play with friends | Compete in regional leagues | Receive payment for performance* | Highest level in sport |
| Play for fun | | *in some sports | |

## Section 1

Please read each of the statements listed below and indicate how much you personally agree with each statement by circling the appropriate response. When do you feel most successful in sport and physical activity? In other words, when do you feel a sport or physical activity has gone really good for you?

*I FEEL MOST SUCCESSFUL IN SPORT AND PHYSICAL ACTIVITY WHEN...*

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|
| 1. I'm the only one who can do the play or skill | 1 | 2 | 3 | 4 | 5 |
| 2. I learn a new skill and it makes me want to practice more | 1 | 2 | 3 | 4 | 5 |
| 3. I can do better than my friends | 1 | 2 | 3 | 4 | 5 |
| 4. The others can't do as well as me | 1 | 2 | 3 | 4 | 5 |
| 5. I learn something that is fun to do | 1 | 2 | 3 | 4 | 5 |
| 6. Others mess up and I don't | 1 | 2 | 3 | 4 | 5 |
| 7. I learn a new skill by trying hard | 1 | 2 | 3 | 4 | 5 |
| 8. I work really hard | 1 | 2 | 3 | 4 | 5 |
| 9. I score the most points or goals | 1 | 2 | 3 | 4 | 5 |
| 10. Something I learn makes me want to go and practice more | 1 | 2 | 3 | 4 | 5 |
| 11. I'm the best | 1 | 2 | 3 | 4 | 5 |
| 12. A skill I learn really feels right | 1 | 2 | 3 | 4 | 5 |
| 13. I do my very best | 1 | 2 | 3 | 4 | 5 |

## Section 2

Please read each statement below and for each indicate the extent to which you agree. This should be done by circling the appropriate number between 1 (*Strongly Disagree*) and 4 (*Strongly Agree*). Remember, all responses are strictly confidential so please be as honest as possible.

| | Strongly Disagree | Disagree | Agree | Strongly Agree |
|---|---|---|---|---|
| 1. I never break the rules of my sport | 1 | 2 | 3 | 4 |
| 2. I never argue with a referring decision even if I feel it is wrong | 1 | 2 | 3 | 4 |
| 3. I do not believe in winning at all costs | 1 | 2 | 3 | 4 |
| 4. I abide by all of the rules in my sport | 1 | 2 | 3 | 4 |
| 5. I will always congratulate my opponent on his or her victory | 1 | 2 | 3 | 4 |
| 6. I would rather be respected for my actions than merely winning | 1 | 2 | 3 | 4 |
| 7. I would not intentionally injure an opponent to gain advantage | 1 | 2 | 3 | 4 |
| 8. I never argue with officials | 1 | 2 | 3 | 4 |
| 9. I would not bend the rules to win | 1 | 2 | 3 | 4 |
| 10. It is more important to do what is right than to win | 1 | 2 | 3 | 4 |
| 11. At times I will acknowledge my opponents good play | 1 | 2 | 3 | 4 |
| 12. I refrain from tactics that could injure my opponent | 1 | 2 | 3 | 4 |
| 13. I would rather lose with grace than win with dishonesty | 1 | 2 | 3 | 4 |
| 14. I never vent my frustrations on match officials | 1 | 2 | 3 | 4 |
| 15. I truly respect a worthy opponent | 1 | 2 | 3 | 4 |
| 16. I play hard but make sure that I do not injure my opponent | 1 | 2 | 3 | 4 |
| 17. I do not swear at officials | 1 | 2 | 3 | 4 |
| 18. Winning is not always the most important part of sport | 1 | 2 | 3 | 4 |
| 19. It is wrong to test the boundaries to see what I can get away with | 1 | 2 | 3 | 4 |
| 20. I would go out of my way to congratulate an opponent | 1 | 2 | 3 | 4 |
| 21. I would never intentionally foul an opponent | 1 | 2 | 3 | 4 |
| 22. The official's decision is final and I accept that | 1 | 2 | 3 | 4 |
| 23. I always obey the rules of my sport | 1 | 2 | 3 | 4 |
| 24. It is more important to play fair than to win | 1 | 2 | 3 | 4 |

## Section 3

How often have you engaged in the following behaviours during the current season? Please indicate by circling the appropriate number between 1 (*Never*) and 5 (*Very Often*).

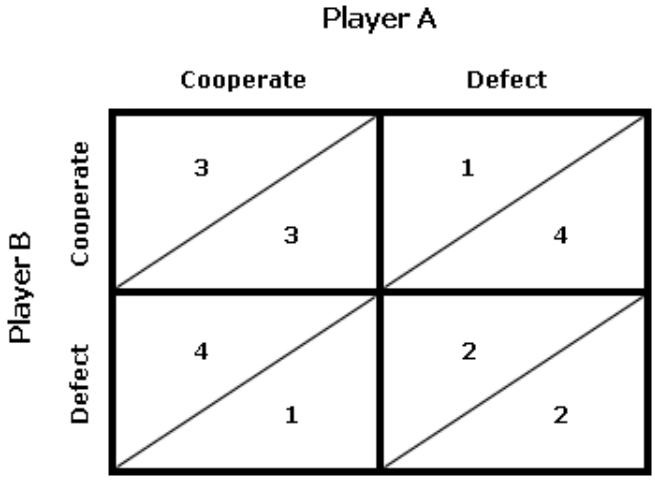
| | Never | Rarely | Sometimes | Often | Very Often |
|---|---|---|---|---|---|
| 1. Encouraged a teammate | 1 | 2 | 3 | 4 | 5 |
| 2. Congratulated a teammate for good play | 1 | 2 | 3 | 4 | 5 |
| 3. Gave positive feedback to a teammate | 1 | 2 | 3 | 4 | 5 |
| 4. Gave constructive feedback to a teammate | 1 | 2 | 3 | 4 | 5 |
| 5. Helped an injured opponent | 1 | 2 | 3 | 4 | 5 |
| 6. Asked to stop play when an opponent was injured | 1 | 2 | 3 | 4 | 5 |
| 7. Helped an opponent off the floor | 1 | 2 | 3 | 4 | 5 |
| 8. Verbally abused a teammate | 1 | 2 | 3 | 4 | 5 |
| 9. Swore at a teammate | 1 | 2 | 3 | 4 | 5 |
| 10. Argued with a teammate | 1 | 2 | 3 | 4 | 5 |
| 11. Criticized a teammate | 1 | 2 | 3 | 4 | 5 |
| 12. Showed frustration at a teammate's poor play | 1 | 2 | 3 | 4 | 5 |
| 13. Tried to injure an opponent | 1 | 2 | 3 | 4 | 5 |
| 14. Tried to wind up an opponent | 1 | 2 | 3 | 4 | 5 |
| 15. Deliberately fouled an opponent | 1 | 2 | 3 | 4 | 5 |
| 16. Intentionally distracted an opponent | 1 | 2 | 3 | 4 | 5 |
| 17. Retaliated after a bad foul | 1 | 2 | 3 | 4 | 5 |
| 18. Intentionally broke the rules of the game | 1 | 2 | 3 | 4 | 5 |
| 19. Physically intimidated an opponent | 1 | 2 | 3 | 4 | 5 |
| 20. Criticized an opponent | 1 | 2 | 3 | 4 | 5 |

**Thank you for your participation.**

**Appendix F: Participant Information Sheet (Competitive condition)**

In this study you will be required to play a round robin tournament of a dilemma game. In this game you need to make a decision in each round against each opponent whether to 'cooperate' or 'defect'. In total, you will play 10 rounds against 11 opponents, therefore selecting to cooperate or defect on 110 occasions. At the end of the tournament, you will be placed in a league table.

In each match of 10 rounds, you will sit opposite an opponent who will be behind a screen. The screen will contain the following diagram, illustrating your options:




The numbers in the boxes represent the points that will be scored. For example, if both players choose to cooperate, both players gain 3 points. If both defect, both receive 2 points and if one cooperates and the other defects, the player who chooses to cooperate receives 1 point and the one who chooses to defect receives 4 points.

At each stage of the tournament, the league table will be displayed, identifying participants by number. At the end of the tournament the following prizes will be awarded:

1st Place: £50
2nd Place: £25
3rd Place: £10

You can leave the study, or request a break, at any time.

This study is conducted in accordance with British Psychological Society, and University ethics guidelines. Your rights as a participant, including the right to withdraw at any point without penalty, are ensured.

It is anticipated that the findings of the study will be written up for publication in a peer-reviewed journal and presented at international conferences. All results will be anonymised and it will not be possible to identify individual participant's data.

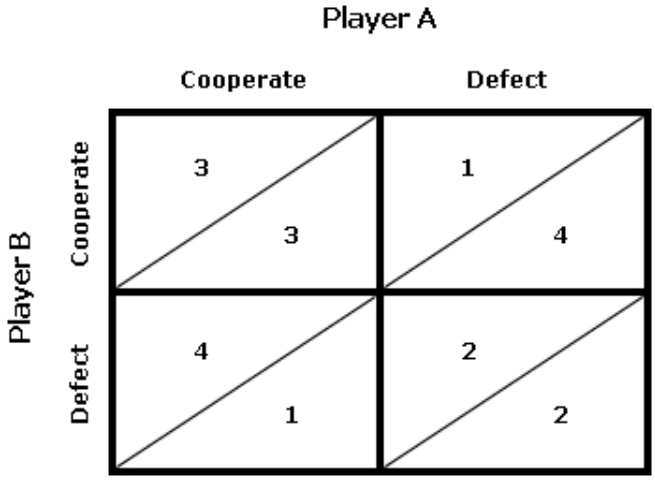
If you have any questions at all, please ask them now.

If you would like to participate, please complete the attached informed consent form.

**Participant Information Sheet (Accumulative Condition)**

In this study you will be required to play a round robin tournament of a dilemma game. In this game you need to make a decision in each round against each opponent whether to 'cooperate' or 'defect'. In total, you will play 10 rounds against 11 opponents, therefore selecting to cooperate or defect on 110 occasions. At the end of the tournament, your results will be tallied and you will receive a prize related to your total points accumulated.

In each match of 10 rounds, you will sit opposite an opponent who will be behind a screen. The screen will contain the following diagram, illustrating your options:




The numbers in the boxes represent the points that will be scored. For example, if both players choose to cooperate, both players gain 3 points. If both defect, both receive 2 points and if one cooperates and the other defects, the player who chooses to cooperate receives 1 point and the one who chooses to defect receives 4 points.

At the end of the tournament, you will receive remuneration of 3 pence per point gained.

You can leave the study, or request a break, at any time.

This study is conducted in accordance with British Psychological Society, and University ethics guidelines. Your rights as a participant, including the right to withdraw at any point without penalty, are ensured.

It is anticipated that the findings of the study will be written up for publication in a peer-reviewed journal and presented at international conferences. All results will be anonymised and it will not be possible to identify individual participant's data.

If you have any questions at all, please ask them now.

If you would like to participate, please complete the attached informed consent form.

**PARTICIPANT CONSENT FORM**

Name of participant:

Title of the project: Criterion validity of CAPSS: A dilemma

Researcher's contact details: John Perry, j.perry@leedstrinity.ac.uk, 0113 283 7175

Members of the research team: Peter Clough

I agree to take part in the above research. I have read the Participant Information Sheet, which is attached to this form. I understand what my role will be in this research, and all my questions have been answered to my satisfaction.

I understand that I am free to withdraw from the research at any time, for any reason and without prejudice.

I have been informed that the confidentiality of the information I provide will be safeguarded.

I am free to ask any questions at any time before and during the study.

I have been provided with a copy of this form and the Participant Information Sheet.

Data Protection: I agree to the University processing personal data that I have supplied. I agree to the processing of such data for any purposes connected with the Research Project as outlined to me.

Signed…… Date……

Name of participant (print)…….…….

**Debriefing Form**

This study was primarily designed to examine the relationship between responses on the Compliant and Principled Sportspersonship Scale (CAPSS) and actual decisions in an experimental condition.

Secondly, you have taken part in a tournament in one of two conditions; a competitive condition, where prizes where based on a league table position, and an accumulative condition, where prizes where based on total points accrued. This was to identify how prepared people were to defect in a competitive condition compared to a non-competitive one.

You also completed the Trait Emotional Intelligence Questionnaire (TEIQue) and the Moral Judgment Test (MJT). The results from these will be calculated and aligned with the CAPSS.

In total, you have been assessed in many areas of morality and emotional intelligence. If you are interested in receiving a report on your profile, please email John and he will compile it. You should allow a couple of weeks for this, as the calculation and report writing takes some time.

I hope that this has helped to clarify for you the purpose of the study you have just undertaken.

Your participation in the study is greatly appreciated.

If you have any further comments or queries, please let me know (John Perry, j.perry@leedstrinity.ac.uk, 0113 283 7175)

## Appendix G: Participant Information Sheet

In this study you are required to play an online maze-based game for 10 minutes, monitoring your score on the attached scoring sheet.

You will be explained the game controls and allowed a practice go before the 10 minutes begin. Upon completion of your allotted time, you will undergo a debriefing before leaving.

You can leave the study, or request a break, at any time.

This study is conducted in accordance with British Psychological Society, and University ethics guidelines. Your rights as a participant, including the right to withdraw at any point without penalty, are ensured.

All results will be anonymised and it will not be possible to identify individual participant's data.

If you have any questions at all, please ask them now.

If you would like to participate, please complete the attached informed consent form.

**Maze Record sheet** **Date:_____** **Participant ID:_____**

| Maze | Time Passed | Moves Made |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| 12 | | |
| 13 | | |
| 14 | | |
| 15 | | |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | | |
| 20 | | |
| 21 | | |
| 22 | | |
| 23 | | |
| 24 | | |
| 25 | | |

**Debriefing Form**

This study was designed to examine the predictive validity of the Compliant and Principled Sportspersonship Scale (CAPSS) on cheating in an experimental condition.

The computer that you have completed the game on has spyware installed and your self-recorded scores will be cross-checked with the actual scores to identify discrepancies. This information is only available via your assigned number and not your name. Consequently, you will not be identified from your results; they will merely be correlated between your own scoring record and completed CAPSS. Completion of the Mental Toughness Questionnaire-48 was used as a dummy measure to keep the exact purpose of the study from you.

You will still be eligible to claim the prize for the most mazes completed.

I appreciate that there has been an element of deception in some parts of this study. As such, I can still offer you the opportunity to withdraw from the study at this point. If you wish to do so, please inform me.

I hope that this has helped to clarify for you the purpose of the study you have just undertaken.

Your participation in the study is greatly appreciated.

If you have any further comments or queries, please let me know (John Perry, j.perry@leedstrinity.ac.uk, 0113 283 7175)