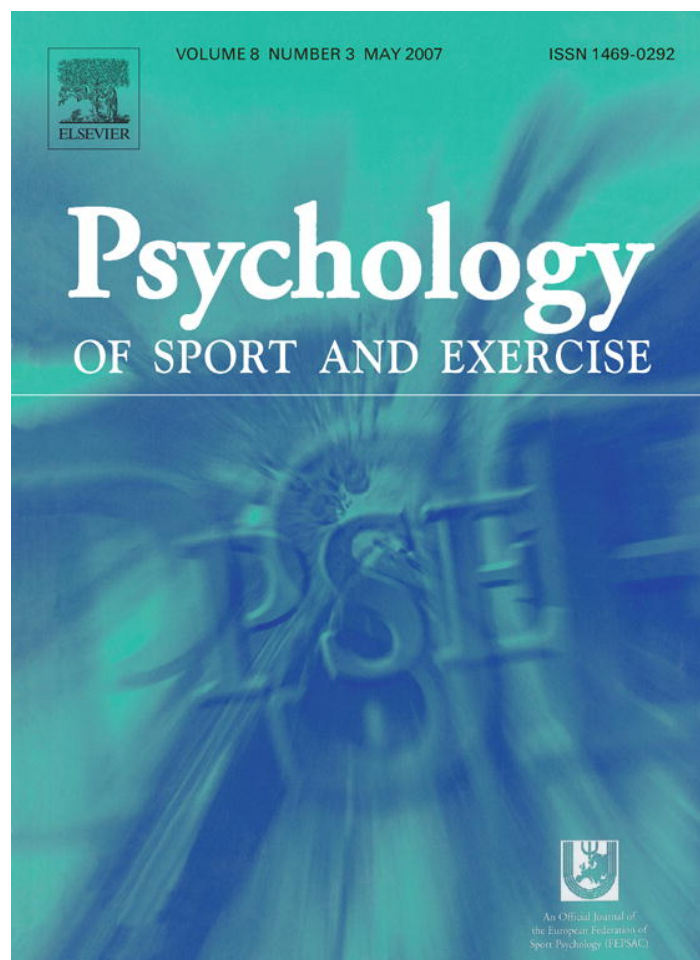


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Development of the Attitudes to Moral Decision-making in Youth Sport Questionnaire (AMDYSQ) [☆]

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Abstract

Objectives: To develop a questionnaire on attitudes to moral decision making in youth sport and describe the levels of ethical attitudes in young competitors.

Design: One qualitative and 4 quantitative studies.

Method: First, 11 focus group interviews with 50 competitors, aged 11–17 years, identified their attitudes to moral issues. Subsequently, exploratory (EFA) and confirmatory (CFA) factor analyses with samples of 435 and 218 competitors eliminated unsuitable items, to improve conceptual clarity and factorial validity, and reduced a 56-item pilot questionnaire to a 3-factor 18-item instrument measuring Acceptance of Cheating, Acceptance of Gamesmanship, and Keeping Winning in Proportion. Then exploratory modifications were made in a restricted framework to develop a 9-item gender-invariant instrument using a sample of 1126 competitors. Finally, with 375 participants, the 3-factor model was cross-validated and concurrent validity was demonstrated by correlations with a similar instrument.

Results: All psychometric criteria were met. Males, older and team sport athletes scored higher than females, younger and individual sport athletes on acceptance of cheating and gamesmanship. Acceptance of

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gamesmanship was also higher among athletes at higher competitive levels and keeping winning in proportion was higher in females.

Conclusion: We present a sound psychometric instrument to assess 3 ethical attitudes in young competitors.

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Introduction

The view that sport is a theatre for the expression of moral behaviour and indeed has an influence on moral development, has been widespread, yet research to investigate the credibility of the claims has been somewhat equivocal (Shields & Bredemeier, 1995). The bulk of early research into fairplay, or violations of its principles, was conducted through a variety of attitudinal studies (e.g. Blair, 1985; Case, Greer, & Lacourse, 1987; Goodger & Jackson, 1985; Maloney & Petrie, 1972; Mantel & Vander Velden, 1974). The results of these studies in North America suggest that instrumental attitudes are more commonly associated with older athletes, competitive success, males rather than females, and higher levels of participation. However, Lee and Williams (1989) found no reliable relationships between the endorsement of fouls and experience, playing position, or level of performance, among young athletes in the United Kingdom. Subsequently several studies by Kavussanu (e.g. Kavussanu & Ntoumanis, 2003) have sought to clarify the roles of the many interacting variables which underpin inconsistent findings in this field.

The influence of sport participation on moral behaviour outside of the sporting context is also equivocal. Segrave and Hastad (Segrave & Hastad, 1982, 1984; Segrave, Hastad, Pangrazi, & Peterson, 1984; Segrave, Moreau, & Hastad, 1985) have reported a negative relationship between sport participation and delinquency. However, Telama and Liukkonen (1999) reported that boys involved in organised sport were more disposed to aggression than boys who did not do sport. In contrast to the work of Segrave and his co-workers, Begg, Langley, Moffitt, and Marshall (1996) conducted a longitudinal study that showed that high involvement in individual sports—but not in team sports—was associated with increased delinquency.

Bredemeier and her co-workers have provided the major impetus to the study of moral development and behaviour in youth sport in an extensive research programme that drew heavily upon the structural–developmental models developed by Kohlberg (Colby & Kohlberg, 1987; Kohlberg, 1976) and Haan (e.g. Haan, 1978; Haan, Aerts, & Cooper, 1985). Nevertheless, after prolonged investigation and careful evaluation of the evidence, Shields and Bredemeier (1995) concluded that there is not sufficient evidence for establishing a causal link between physical activity and moral development.

More recently, the assessment of attitudes towards fairplay among young athletes has been the subject of research by Vallerand and his co-workers (see, for example, Vallerand, 1994; Vallerand, Brière, Blanchard, & Provencher, 1997; Vallerand, Deshaies, Cuerrier, Brière, & Pelletier, 1996; Vallerand & Losier, 1994), and by Boixadós and Cruz (1995) and Boixadós, Cruz, Torregrosa, and Valiente (2004). Vallerand and Losier (1994) provided an alternative socio-psychological perspective. They observed that Haan, in particular, has had a great influence on the study of moral behaviour in sport, but that the theory relied exclusively on the developmental aspects of

moral dialogue between protagonists. The catalogue of research by Bredemeier and her co-workers derived from this perspective addressed the issue of sportsmanship largely through a focus on aggressive behaviour. Consequently, Vallerand and Losier (1994, p. 230) contended, attention was diverted from other issues relevant to sportsmanship research, and indeed, the “... content of sportsmanship behaviours has yet to be identified”.

Vallerand (1994) argued (a) for a socio-psychological approach to the study of sportsmanship that recognises the social origins of ethical behaviour, (b) that it was necessary to define the content of sportsmanship as a pre-requisite for the investigation of sportsmanship behaviour, orientations, and development, and (c) that an understanding of the concept by athletes is reached through interaction with salient adults and peers. Thus, the nature of sportsmanship emerges by a consensus within a social context. Vallerand further argued that this process implies that the definition of sportsmanship is best obtained from the athletes themselves. Thus, the resulting Multi-dimensional Sportsmanship Orientations Scale (MSOS; Vallerand et al., 1997) has proved to be a major step toward recognising the social–psychological roots of the concept and provided an operational definition that drew upon the lived experience of the athletes themselves.

The MSOS was developed through a number of stages by identifying potential items suggested by an open-ended questionnaire that asked adolescent athletes to provide their definition of sportsmanship and examples of sportsmanlike behaviour. Items were categorised to provide good coverage of the facets of the constructs involved prior to selection. An EFA revealed five factors that explained 50% of the variance. The final form of five scales, each of five items, was piloted with a large sample of adolescent athletes and gave satisfactory psychometric properties. The scales represent (a) commitment to participation, (b) respect for social conventions, (c) respect for rules and officials, (d) respect for opponents, (e) a negative approach to participation. The last focuses on the importance of winning at all costs and is scored with reverse polarity. The MSOS, then, identifies primarily positive socio-moral attitudes involved in sports participation with only a single scale that addresses unsportsman-like behaviour.

Boixadós and Cruz (1995) advanced a multidimensional definition of fairplay incorporating (a) respect for rules, (b) good relationships with opponents, (c) equality of opportunity and conditions, (d) avoidance of ‘victory at all costs’, (e) honour in victory and defeat, and (f) commitment to do one’s best. However, when data from a 35-item questionnaire administered to teenage soccer players were subjected to EFA, they revealed three attitude components: (a) rough play, (b) spirit of the game and enjoyment, and (c) commitment to winning, of which two could be construed as representing anti-social constructs. The final scale comprised 27 items and explained 30.8% of the variance, supporting the authors’ comment that the scale did not represent all aspects of the fairplay concept. In a subsequent study (Boixadós et al., 2004), cheating was incorporated in the rough play scale and 16 items explained 46% of the variance in the Fair Play Attitudes Scale (Escala d’Actituds de Fair play: EAF-C).

Concept of cheating

Neither of the preceding instruments directly addresses attitudes towards cheating, which appears to occupy the minds of parents, players, fans and coaches (e.g. BBC News Online, 2006). Perhaps one of the problems is that the category ‘cheating’ may also be difficult to define both conceptually and operationally, in much the same way as Vallerand has argued about

sportsmanship. Furthermore, there appear to be other conceptually similar categories of behaviour that occur in sport by which players violate the implicit nature of the contract to compete fairly and seek to gain a ‘dishonourable’ advantage. These may be described as ‘professional fouls’ and gamesmanship.

In examining the first class of dishonourable behaviour, cheating, Reddiford (1998) pointed out that the rules, definitions and ends of a game, or sport, provide the structure of the activity. Hence, those who wish to compete in such activities implicitly agree to abide by those rules in the pursuit of the stated ends. Since the rules define what is and what is not permitted, they must also define the skills that may be brought to bear in the pursuit of the stated ends. Thus, in order to compete successfully it follows that players, and coaches, should know the rules and what they allow as well as what they prohibit. To be more precise they should know what the officials—referees, umpires, etc.—in any particular contest would allow. Hence, Reddiford (1998) argued that cheating is characterised by three features. First, it involves seeking to make illegitimate gains, by violating the rules of the game. Second, it involves the concealment of true intentions, that is, deception is essential. Third, cheating is successful if the victim, and/or an independent party (e.g. the official) is convinced that all is well. However, the third feature appears to address the criterion by which success of cheating is judged rather than being an essential characteristic of the behavioural category. Nevertheless, it appears that cheating refers to infractions of the rules in order to gain some unfair advantage in which there is a degree of successful deception. However, merely to operate the art of deception is not enough to merit the charge of cheating because skillful players will always attempt to deceive their opponents, as part of their skill. Deception of that sort lies within the rules of the game and may characterise skillful performance. Thus, in cricket, a skillful bowler will seek to lure the batsman into a false stroke by disguising the type of delivery he is making.

A second category of dishonourable behaviour, often known as the ‘professional foul’, occurs when players deliberately break the rules knowing that, despite suffering a penalty, they will gain advantage. In this case, Reddiford’s third feature of cheating is not met. For example, in soccer a defender may trip an opposition attacker, preferring to give away a free kick but giving the defence time to re-organise. Although there may be an expectation of detection the tactical outcome of the penalty renders the act advantageous.

Thirdly, there is a category of actions that do not actually violate the rules of the sport but that do appear to violate the spirit of the contest, perhaps using the laws to gain some advantage that might be considered to be unfair or dishonourable. Thus, for example, the receiver in tennis may pause to retie a shoelace as his opponent is about to serve, thereby upsetting the server’s rhythm, or the fielders in cricket may try to upset the batsman by derogatory comments, a practice commonly known as ‘sledging’. Such actions appear to fall into the category initially called ‘gamesmanship’ by the British humorist Stephen Potter (1947, 1950). Potter described how sophisticated, and perhaps less technically skillful, players adopted strategies to upset their opponents and win without actually cheating. A wide range of behaviours may be described as gamesmanship but most would appear to focus on distracting or psychologically destabilising opponents. These actions are neither examples of violating the rules of the game nor do they involve deception, yet they may be considered to be a form of cheating in that there is a motivation to gain an unfair advantage by adopting behavioural strategies that are not covered by the rules of the game. Currently, we are not aware of any instrument that seeks to identify such behaviour or attitudes towards it.

Stephens, Bredemeier, and Shields (1997) have addressed the issue of cheating directly in a youth soccer population. They developed an instrument, the Judgements about Moral Behavior in Youth Sport Questionnaire (JAMBYSQ), which examines attitudes towards three types of non-moral behaviour: cheating, aggression and lying to officials. Stephens et al. (1997) utilised a social constructivist approach that acknowledges the influence of both developmental and social forces on moral thinking. By using a restricted number of scenarios (i.e., three) to represent the target attitudes JAMBYSQ explores the participants' deontic judgement, moral atmosphere within the team, action tendencies, and motivational precursors to action. This technique has the advantage of exploring different aspects of moral reasoning, judgement, and attitude while focusing on a single incident. It does not, however, permit researchers to distinguish among some of the dimensions of dishonourable behaviour outlined above.

Finally, in consideration of the arena in which cheating takes place, Shields and Bredemeier (1995) argued that moral exchanges in sport occur in a context of bracketed morality, in which responsibilities differ from everyday life and where game reasoning leads participants to adopt more egocentrism and a narrower emphasis on winning. A related argument from the perspective of achievement goal theorists (e.g. Nicholls, 1989) is that an ego orientation, which involves a preoccupation with demonstrating superiority, may be accompanied by a lack of concern for justice and fairness. A negative relationship has been found between sportspersonship and ego-orientation or an ego-involving climate (e.g. Lemyre, Roberts, & Ommundsen, 2002; Stornes & Ommundsen, 2004). Similarly, a positive relationship has been found between higher sportspersonship or moral functioning and a self-referenced task orientation or a task-involving climate (e.g. Duda, Olson, & Templin, 1991; Kavussanu & Ntoumanis, 2003; Miller, Roberts, & Ommundsen, 2004). Thus, avoiding pressure to win appears conducive to moral attitudes.

Purpose

The project reported here was, therefore, designed to serve two purposes. The first was to develop an instrument to measure attitudes towards moral decision making in sport among youth populations, with particular focus on the distinction between those actions that could be fairly described as cheating and other classes of actions that might also be described as immoral, instrumental, or antisocial, such as gamesmanship. Secondly, after developing the instrument we intended to describe the levels of these attitudes among a population of adolescent athletes in England. These purposes were addressed through a series of five studies that incorporated both qualitative and quantitative methods.

Study 1: Identification of items

The purpose of this study was to obtain suitable items for a pilot questionnaire. The selected method was that of the Focus Group, which is frequently used to explore and clarify issues amongst a target population. The advantages of this method are that participants can (a) disagree with each other, thereby identifying differences of opinion of which the researcher may be unaware, (b) expand on their comments through discussion between themselves, and (c) clarify their explanations (Frey & Fontana, 1993). It is a suitable method for interviewing young people

because they can feel safer and more relaxed in the company of a strange interviewer when others are present.

Method

Interviews were conducted with 11 groups of sport participants (males $n = 24$, females $n = 26$) aged 11–17 years, drawn from five schools in the south of England. The numbers in each focus group varied from 3 to 6 participants (mode = 5). Participants were grouped for homogeneity on a suitable variable (age or sex) to encourage participation. All interviews were recorded, transcribed, and subjected to content analysis. Participants were assured of confidentiality of their responses. Three interviewers were used; two male and one female. Training was undertaken to ensure consistency of approach between interviewers.

Stimulus subjects for discussion were drawn from a survey of experienced contributors to youth sport, which included coaches, administrators, and teachers (Lee, 1998). These experts identified nine categories of unethical behaviour that were of concern. Of these, four addressed issues central to our exploration of unethical attitudes, such as cheating, gamesmanship, the absence of fairplay, and the importance of winning at all costs. Participants were asked to draw on their own experience to discuss the importance of these issues in the context of their own participation in sport.

Results

When added to responses from the earlier experts survey (Lee, 1998), the content analysis resulted in a pool of 189 potential questionnaire items. Subsequent categorisation of these items identified personal conduct, cheating, fairplay, gamesmanship, and attitudes towards winning as the most frequently mentioned constructs. Other commonly mentioned topics, such as parental roles and aggression, were considered to be beyond the scope of the current investigation. The item pool was further reduced to 56 items by a panel of experts, which included three members with experience in constructing attitude questionnaires, and one member with experience in children's reading and language skills. The criteria used to select potential items were (a) coverage of the whole range of opinion and (b) ease of understanding by young people.

Discussion

These qualitative processes produced a list of items from which to develop an instrument suitable as a measure of ethical attitudes among athletes between 11 and 17 years of age. The items had good ecological validity because the topics were proposed by experts in youth sports and the item content was provided by young competitors. Subsequent reduction by other experts provided 56 items with good coverage of the underlying constructs. The items provided a foundation on which to identify viable factors in the next study.

Study 2: Identification of potential factors

The purpose of this study was to make a preliminary identification of potentially viable factors by testing the pool of pilot items derived from Study 1. Fifty-six items were selected and placed in

random order in a questionnaire with an introduction that stated, “In the list below there are some things that people have said about cheating and fairplay in sport. Please read each one and circle one of the numbers beside it to show how much you agree or disagree with it. Some of these are not very different so you will have to be careful.” A 5-point response scale was given, anchored by *Strongly Agree* (1) and *Strongly Disagree* (5). Half the items were phrased for reverse scoring, to avoid a biased response pattern. Scores were subsequently re-coded where appropriate to give the highest value for strong agreement with a construct.

Method

The pilot questionnaire was completed by 435 participants (males $n = 240$, females $n = 195$) aged 11–16 years ($M = 14.46$, $SD = 1.20$); they competed for their school or club or a higher-level team in a range of team and individual sports. The questionnaire was administered in a classroom or quiet room in a sports club. The project was explained to participants as a study of young athletes’ feelings about sport and the participants were assured of confidentiality. As in all the studies reported in this paper, teachers or researchers administered the questionnaires using a well-tested and ethically approved protocol. Approval for the studies was previously obtained from head teachers or coaches as appropriate.

Results

In order to identify potentially viable factors in a new area of study, several EFA’s were performed on complete questionnaires ($n = 384$). A principal components extraction and an oblimin rotation were used because correlated factors were anticipated. Interpretation was made from items loading $> .40$ although items loading $> .30$ were also examined. It was not known how many factors would be both conceptually meaningful and statistically viable; hence all factors with eigenvalues greater than 1.00 were initially extracted for preliminary examination. Fifteen factors were found to explain 59.1% of the variance, but nine of these had no more than three items and they explained insufficient variance for practical use. The scree plot showed three major factors (eigenvalue > 2.4) and three lesser factors ($2.4 > \text{eigenvalue} > 1.4$) that were clearly greater than the remainder. Hence a second analysis was performed in which only the six largest factors were extracted for further examination. These factors explained 39.7% of variance.

The content of the six largest factors was conceptually meaningful because (a) the cluster of items that formed each factor seemed to measure the same construct, and (b) each construct was central to ethical attitudes in sport. Factor I had 16 items, with the highest loading (.76) for *It’s OK to cheat if nobody knows* and the lowest loading (–.42) for *There is no point in playing if you are going to bend the rules*, hence it was labelled Acceptance of Cheating. Factor II had seven items, with the highest loading (.62) for *I get annoyed by people trying to ‘win at all costs’* and the lowest loading (–.44) for *Winning, that’s all that matters*, hence it was labelled Keeping Winning in Proportion. Factor III had six items, with the highest loading (–.81) for *I would never psyche anyone out* and the lowest loading (–.46) for *If I don’t want someone to do well, I put them off a bit*, hence it was labelled Acceptance of Gamesmanship. Factor IV had three items with the highest loading (.62) for *Either I or one of my teammates will thank the officials* and the lowest loading (.42) for *You should mean it when you shake hands*; hence it was labelled Respect for Sport. Factor V had three items with the highest loading for

I feel bad if our team uses players that are too old (.49) and the lowest loading for *I feel I would let myself down if I cheat* (.40), hence it was labelled Shame. Factor VI comprised the items *It is up to the players to make the game fair* (.71) and *It is up to me to make the game fair* (.60), hence it was labelled Responsibility. Factor correlations ranged from $-.31$ to $.26$.

However, although their content was salient, factors IV–VI contained no more than three items and explained little variance ($<3.3\%$). They also fell below the “elbow” in the scree plot and were eliminated when Cattell’s (1966) scree test was subsequently performed. Consequently, the data set was reduced to 27 items by cutting factors IV–VI, items that loaded $<.40$ on factors I–III, and four items that did not conceptually represent their factor (e.g. items related to manners). An analysis of this reduced data set showed that the three major factors (Acceptance of Cheating, Acceptance of Gamesmanship, and Keeping Winning in Proportion) explained 43% of item variance.

The largest factor, Acceptance of Cheating, had more than twice as many items (16) as the next factor (6) hence we had an opportunity to select its strongest items, and avoid an unwieldy questionnaire. EFA of this factor showed that three subfactors explained 52% of variance, with the first subfactor accounting for 38%. Items on this subfactor focused on the participants’ projected personal actions (*I would cheat if I thought it would help me win; I cheat if I can get away with it*), whereas the second and third subfactors comprised impersonal statements (*Little things should not be punished; and Cheating ruins a game*) that were more directed to sport administration and the role or effect of cheating in sport). Consequently, items on the first subfactor were selected as the most pertinent to personal Acceptance of Cheating. A final EFA of the selected items for Cheating ($n = 7$), Gamesmanship ($n = 5$), and Winning ($n = 6$) items showed that these factors explained 50% of variance, with eigenvalues after rotation of 5.3, 4.0 and 3.0 respectively. Factor correlations were $r = -.36$ (Cheating and Winning), $r = -.20$ (Gamesmanship and Winning), and $r = .41$ (Cheating and Gamesmanship). Table 1 gives factor loadings for this final EFA and for confirmatory factor analyses (CFA) reported in the subsequent studies.

Discussion

In Study 2, we used EFA to explore the data and identify potentially viable factors related to moral decision making. The content of the six largest factors was salient. Cheating represents a violation of the rules and is central to the study of unethical behaviour. Gamesmanship represents a violation of the spirit rather than the rules of the game. A focus on keeping winning in proportion counters pressure for the unethical behaviour involved in winning at all costs. It gives an indication of the extent to which respondents are able to contextualise their actions and may relate to Shields and Bredemeier’s (1995) notion of bracketed morality. Respect for sport addresses the ethical context of the sporting contract and is consistent with work by other researchers. Shame is a key emotion evoked when one’s sense of personal morality is violated. Acceptance of responsibility for personal behaviour is essential for the maintenance of ethical conduct. However, factors IV–VI were rejected because they accounted for little variance. Nevertheless, we report them here because their content merits future research.

Factors I–III, as finally selected, explained 50% of item variance. This is comparable to the variance explained by Vallerand’s MSOS (50%), and the EFA-C (46%) of Boixadós et al. (2004). Hence, these factors were considered to be conceptually and psychometrically suitable for the next pilot study.

Table 1
Descriptive statistics and factor loadings of the three major factors in Studies 2–5

Factor and item	M	SD	EFA	CFA-1	CFA-2	CFA-3	CFA-4
I. Acceptance of Cheating							
It is OK to cheat if nobody knows	1.61	.91	.83		.82	.86	.89
I would cheat if I thought it would help me win	1.86	.93	.81	.72	.82	.82	.76
If other people are cheating, I think I can too	1.88	.95	.51	.67	.61	.66	.59
I cheat if I can get away with it	1.98	1.07	.73	.85	.64		
When I get the chance I fool the official	1.82	1.02	.49	.85	.61		
I always play by the rules ^a	4.11	.92	−.60	−.46			
I would cheat if I thought it would help the team win	2.00	1.00	.64				
II. Keeping Winning in Proportion							
Winning and losing are a part of life	4.36	.81	.71	.68	.77	.84	.77
It is OK to lose sometimes because in life you don't win everything	4.18	.42	.65	.67	.71	.62	.82
If you win properly it feels better than if you did it dishonestly	4.60	.83	.57	.47	.52	.56	.47
You have to think about the other people and not just winning	3.94	.90	.53	.65	.38		
I get annoyed by people trying to 'win at all costs'	3.77	1.02	.63	.45			
Winning is all that matters ^a	2.14	1.06	−.31	−.52			
III. Acceptance of Gamesmanship							
I sometimes try to wind up the opposition	3.09	1.27	.71	.71	.80	.79	.80
It is not against the rules to psyche people out so it's OK to do	3.21	1.14	.81		.65	.63	.73
<i>Sometimes I waste time to unsettle the opposition</i>	2.67	1.15			.68	.66	.69
If I don't want another person to do well then I put them off a bit	2.56	1.17	.53	.79	.58		
<i>It is a good idea to upset your opponent</i>	2.04	1.05			.74		
I would never psyche anybody out ^a	2.80	1.16	−.85	−.39			
It is understandable that players swear in the heat of the moment	3.65	1.99	.52	.35			

Notes: Loadings for all factors are presented in the same column but refer to the factor named alongside. Items in italics were added to the Acceptance of Gamesmanship factor in Study 4.

EFA: Final exploratory factor analysis of the three factors selected in Study 2.

CFA-1: Confirmatory factor analysis of the initial 3-factor model in Study 3.

CFA-2: Confirmatory factor analysis of the uni-dimensional scales in Study 4.

CFA-3: Confirmatory factor analysis of the 3-factor model developed in Study 4.

CFA-4: Confirmatory factor analysis of the 3-factor model confirmed in Study 5.

^aReverse-scored item.

Study 3: Evaluation of the 3-factorial structure

The purpose of this study was to determine the extent to which the factorial structure of the instrument could be confirmed in a new sample. Items that represented Acceptance of Cheating, Keeping Winning in Proportion, and Acceptance of Gamesmanship in the final EFA were placed

in random order in a new questionnaire. An item that referred only to team sport was eliminated, together with two items that appeared to have redundant content.

Method

The questionnaire was completed by 218 sport participants (males $n = 113$, females $n = 105$), aged 11–16 years ($M = 12.45$, $SD = .85$), drawn from three schools: they competed for their school or club, or at a higher level, in a range of team and individual sports. The administrative conditions were the same as in Study 2, but the age distribution was intentionally biased toward younger competitors to ensure that the items could be readily understood by this age group.

A CFA was conducted, using the LISREL 8.54 software (Jöreskog & Sörbom, 2003), testing the 15-item 3-factor model. The adequacy of the factorial structure was evaluated by various goodness-of-fit indices. One of these, the chi-square (χ^2) statistic, tests the absolute fit of the model to the data but is very sensitive to sample size, hence a variety of other indices are commonly used. In this study, the Root Mean Square Error of Approximation (RMSEA) was primarily used to assess the closeness of fit of the hypothesised model to the population covariance matrix. Rigdon (1996) considers this to be the most appropriate index for a strictly confirmatory situation such as this, in which we are testing for a close fit to estimate population values.

In addition, we used the Standardised Root Mean Square Residual (SRMR) to show the average of the standardised residuals between the specified and obtained variance–covariance matrices. We also used the Comparative Fit Index (CFI) and the Non-Normed Fit Index (NNFI) to compare the hypothesised model with the independence model, which assumes that the observed variables are uncorrelated. Whereas CFI is sensitive to sample size, NNFI is sensitive to model complexity. Hu and Bentler (1999) suggested that CFI and NNFI values should be close to .95, SRMR should be near .08, and RMSEA near .06.

Results

The CFA of a 15-item 3-factor model, using the maximum likelihood (ML) estimation method, showed that its fit was unacceptable ($\chi^2 = 311.49$, $df = 87$, $p = .00$, $RMSEA = .12$, $SRMR = .09$, $CFI = .86$, $NNFI = .83$). These data were close to the SRMR criterion (.08) but not to the other desirable fit indices. Table 1 shows the factor loadings (CFA-1).

We looked for possible misspecification of the model by examining the standardised residuals between pairs of items together with the salience of the item content (Motl & Conroy, 2000). These authors state that large values (> 2.0) are problematic because they indicate under- or over-prediction. The largest value (4.72) was for the gamesmanship items *I sometimes try to wind up the opposition*, and *It is understandable that players swear in the heat of the moment*. The first item is a clear indicator of gamesmanship, which we regard as an attempt to gain a psychological advantage over an opponent without breaking the rules, whereas the second item suggests a more general factor of bad behaviour. Eliminating the second item, which also had a very low loading (.35), improved the model fit. Other item-pairs had high-standardised residuals but we did not continue the iterative process of removing misspecified items because another gamesmanship item had a low loading and a good-fitting model would include only two gamesmanship items.

Gamesmanship has not previously been measured in youth sport, and we did not want to proceed without a good measure of this important construct.

Discussion

Gamesmanship is a more subtle concept than cheating and develops with sport experience. For this reason we had selected a sample with a mean age two years younger than in the previous study to ensure that we identified any problems at this stage and developed an instrument in which the items could be understood by younger participants. The wisdom of this precaution was supported by the observation during the data collection that the participants asked more questions about the meaning of the gamesmanship items than about other items. Further, our finding in supplementary analyses (not reported here) showed that the model fit was worse for the youngest participants. In this context it was not unexpected that the model did not fit.

The spurious relationship between gamesmanship and swearing is explainable by a relative paucity of gamesmanship items in the original EFA 56-item pool. Since gamesmanship is a developing concept, the young participants made less reference to it than to cheating in their focus groups. Thus the item pool contained a large number of cheating items, which gave a strong cheating factor, but few gamesmanship items. In some initial EFA's the gamesmanship items had loaded with other items related to swearing. This implied that more gamesmanship items were needed to define the construct clearly.

Different perceptions of items by this younger sample were illustrated by the item, *I would never psyche anyone out* (−.39). This previously had the highest EFA loading (−.85) in Study 2 alongside a similar item *It's not against the rules to psyche anyone out so it's OK to do* (.81). At that stage, using the perspective of adult researchers who understand gamesmanship, we dropped the second item because both items said similar things and the first one was simpler. However, in this younger sample, and without a very similar item to correlate with, the item became weak. We have found that reverse-scored items frequently have lower loadings with younger participants; hence if only one of these items is to be used the second positively scored item could be better for this age group. Moreover, the longer wording of the positive item provides clarification that to psyche someone out is not against the rules, whereas the shorter negative item assumes that they already understand this. It was therefore premature to eliminate one of these items at the EFA stage, using adult perceptions alone, without proceeding to a CFA in which the pattern of residuals of both items could be examined to determine how the young competitors themselves perceived the relationships among all the items and whether either or both of the *psyching* items should be used.

In this context, it was desirable to clarify and enrich the gamesmanship construct within the next study. Consequently, we decided to (a) add further gamesmanship items in order to improve the conceptual definition of the factor, (b) test exploratory modifications within a restricted confirmatory framework, and (c) confirm the revised model in a subsequent cross-validation study (i.e., Study 5).

Study 4: Model revision, and evaluation of gender invariance

The purposes of this study were to make exploratory modifications to the model in order to (a) improve the structure of the 3-factor model, (b) test the gender invariance of the model, and

(c) describe mean differences in ethical attitudes as a function of gender, age, competitive level, and type of sport. A large sample with a wide geographical distribution was selected to (a) provide comprehensive data on attitudes among a youth population, and (b) permit separate analyses with males and females. The latter analyses were desirable because if scales can be constructed that have a similar meaning for males and females, subsequent interpretation of any gender differences in mean scores is more valid than if the factorial structure differs for each gender group. Modifications to the model were made in a *restricted framework*, in accordance with the two-step approach advocated by Anderson and Gerbing (1988). These authors discuss the transition from an exploratory to a confirmatory situation as follows:

... a measurement model needs to be specified a priori, although the parameter values themselves are freely estimated. Although this has historically been referred to as a *confirmatory analysis*, a more descriptive term might be *restricted analysis* in that the values of many of the parameters have been restricted a priori, typically to zero.

Because initially specified measurement models almost invariably fail to provide acceptable fit, the necessary respecification and reestimation using the same data mean that the analysis is not exclusively confirmatory. After acceptable fit has been achieved with a series of respecifications, the next step would be to cross-validate the final model on another sample drawn from the population to which results are to be generalized (p. 412).

A modified instrument was constructed that included six items for each factor. We examined the 189 statements from the focus groups to determine if there were other gamesmanship items that could be used. However, these items were unsuitable because they referred to reactions to gamesmanship, rather than decisions to employ it. Consequently, two new gamesmanship items were written to focus on unsettling an opponent. The low-loading item in Study 3 that related to swearing was eliminated, but the low-loading item *I would never psyche anyone out* was retained for further testing because of its high loading in Study 2. Its companion item with a high loading in Study 2 was restored for further testing in this exploratory phase because, as explained above, it appeared that it might be a better item. Likewise a high loading-cheating item that had been considered potentially redundant was also restored for examination of the residuals.¹ In total, three gamesmanship items and one cheating item were added or restored in this study.

Method

Young sport participants ($N = 1126$, males $n = 566$, females $n = 546$, unclassified $n = 14$) were drawn from 25 schools in large urban areas (London, Leeds, Manchester, Liverpool and the West Midlands) and from non-metropolitan areas in South East England. They were aged from 11 to 16 years ($M = 13.48$, $SD = 1.18$) and were drawn from more than 15 team ($n = 669$) and individual ($n = 217$) sports in which they competed for their school or sports club ($n = 769$) or a higher-level team (i.e., district or county, $n = 302$; or regional or above, $n = 55$). Teachers administered the questionnaires using a well-tested protocol to ensure confidentiality. They were

¹The item *It is OK to cheat if nobody knows* is similar to the item *I cheat if I can get away with it* and the former item had been dropped.

given a pre-structured report form to identify any possible irregularities that might have invalidated data collection. No such irregularities were reported.

Initial screening of the data showed that five items had high kurtosis (2.73–3.86) and that 28% of item-pairs failed a test for bivariate normality using PRELIS (Jöreskog & Sörbom, 1988). The CFA's were therefore conducted using the weighted least-squares (WLS) method, which gives results that are independent of the normality of the distribution. LISREL was used to analyse a polychoric matrix and an asymptotic covariance matrix simultaneously. The asymptotic matrix can be computed only when a sample is very large. In our case, listwise deletion yielded a sample of 947, which is adequate for the analysis of 24 variables (Jöreskog & Sörbom, 1988, pp. 2–8).

In accordance with the two-step approach advocated by Anderson and Gerbing (1988), separate CFA's were first performed on the scales for Acceptance of Cheating, Acceptance of Gamesmanship, and Keeping Winning in Proportion in order to obtain close-fitting scales which would serve as a foundation for the 3-factor model. Anderson and Gerbing considered that the achievement of unidimensional measurement is necessary in order to assign meaning to a construct and is crucial in theory testing and development. We wanted to meet this standard in order that the scales could be used independently by researchers with confidence that all items assessed the same construct.

To this end, the LISREL modification indices, which are squares of standardised residuals, were used in an iterative process that paralleled the method of Motl and Conroy (2000), described in the previous study. Thus, items with multiple large residuals were identified and their content was examined for salience and redundancy. When an item was removed the model was re-estimated. Once close-fitting scales were obtained, the fit of a composite 3-factor model was tested.

At each stage, and for each model, the fit was separately examined for the overall sample as well as for two main subgroups of interest, males and females. Unsatisfactory items were eliminated in order to obtain equivalent scales for each gender group. In the multisample analyses that followed, the model was first constrained for equality of factor loadings (the lambda-X matrix), then for equality of error variances (the theta-delta matrix), and finally for equality of factor variances and co-variances (the phi matrix), as recommended by Jöreskog & Sörbom (1989). The fit of the constrained models was evaluated with the same fit indices as those used in Study 3, however, the constrained parameters were also examined individually to detect any partial invariance.

Results

The analyses of individual factors resulted in each case in the achievement of close-fitting scales by deleting certain items.² Here we report only the testing of the 3-factor models. Initially a 3-factor 14-item model was formed from the close-fitting scales for Acceptance of Cheating (five items), Acceptance of Gamesmanship (five items), and Keeping Winning in Proportion (four items) This gave acceptable fit indices only for the RMSEA (.052–.064) and for the SRMR (.077) in the overall sample.

Therefore, we used an iterative process to eliminate five additional items to form models that met the fit criteria and were acceptable for both male and female samples. One winning item *You*

²Information about the CFA's of the individual scales is available from the second author upon request.

must think about other people and not just winning was eliminated because it had a low loading, particularly for males (.23). One cheating and one gamesmanship item were eliminated because they had high modification indices in both male and female samples that indicated cross-loading with the other factor. Of these, the item *When I get the chance I fool the official* was the only inter-personal cheating item whereas all gamesmanship items were directly inter-personal. It was removed to clarify the conceptual distinction between cheating as a violation of the rules and gamesmanship as the distracting of an opponent. The gamesmanship item *If I don't want other people to do well I put them off a bit* also had high modification indices for cross-loading. Finally one cheating and one gamesmanship item were eliminated because they had high modification indices for one gender but not the other, thus they were differently perceived by males and females. The new gamesmanship item *It is a good idea to upset your opponent* had the largest modification indices for females, while the item *I cheat if I can get away with it* was problematic for males. Hence, five items were cut to obtain a 3-factor 9-item model that was invariant across gender.

The revised 3-factor model was acceptable when all parameters were constrained, but an even better fit was obtained when the constraints on factor variances and co-variances were relaxed because inter-factor correlations were higher for females than for males.³ The instrument was called “Attitudes to Moral Decision-making in Youth Sport Questionnaire” (AMDYSQ). In this model the factor correlation between Acceptance of Cheating and Acceptance of Gamesmanship was $r = .55$ (female $r = .65$, male $r = .45$), the correlation between Acceptance of Cheating and Keeping Winning in Proportion was $r = -.50$ (female $r = -.52$, male $r = -.48$), and the correlation between Acceptance of Gamesmanship and Keeping Winning in Proportion was $r = -.12$ (female $r = -.21$, male $r = .07$). Fit indices for all samples in this final model are given in Table 2, whereas factor loadings are given in Table 1.

Descriptive survey

Participants endorsed Keeping Winning in Proportion ($M = 4.37$, $SD = .68$) more strongly than Acceptance of Gamesmanship ($M = 2.81$, $SD = .94$) and Acceptance of Cheating ($M = 1.69$, $SD = .72$). Moreover, the individual scales showed differences as a function of gender, age, competitive level, and type of sport. These differences were explored using latent means structure analyses.

Gender

In contrast to the means of observed variables, latent means are not directly observed. Latent mean structure analysis requires that the factor intercepts (i.e., estimated latent means) for one group are fixed to zero. The group whose means are constrained to 0 serves as the reference group. Thus, the factor intercepts of the other group will be compared to zero when testing for mean differences between the groups. The results of the latent means structure analysis showed significant gender differences on all three scales. Females scored higher than males on Keeping Winning in Proportion ($B = .10$; $p < .05$; effect size $d = .10$) but males scored higher for

³The fit for the individual scales was best when the model was constrained for all parameters noted in the text.

Table 2
Fit indices for the 3-factor models tested in Studies 4 and 5

Model	Items	χ^2	df	<i>p</i>	SRMR	RMSEA	CFI	NNFI
Study 4								
All	9	51.10	24	.00	.041	.035	.97	.96
Male	9	36.51	24	.05	.045	.033	.98	.97
Female	9	51.39	24	.00	.063	.048	.95	.93
Multisample	9	100.75	63	.00	.059/.052	.035	.95	.94
Study 5								
All	9	33.54	24	.09	.052	.034	.98	.98
Male	9	35.42	24	.06	.088	.052	.93	.89
Female	9	19.95	24	.70	.043	.00	.98	.97
Multisample	9	51.13	63	.86	.088/.049	.00	.96	.96

Note: This multisample model was constrained for invariance of factor loadings and error variances sequentially (see text for details). Here separate SRMR indices are given for male (first) and female groups.

Acceptance of Cheating ($B = .21$; $p < .01$; $d = .31$) and Acceptance of Gamesmanship ($B = .58$; $p < .01$; $d = .95$).

Age

Latent mean structure analysis comparing younger (i.e., aged 11–13 years) and older (i.e., aged 14–16) athletes showed that the latter reported higher Acceptance of Cheating ($B = .26$; $p < .01$; $d = .38$) and Acceptance of Gamesmanship ($B = .29$; $p < .01$; $d = .44$). However, there were no significant differences in Keeping Winning in Proportion ($B = -.04$; $p > .05$; $d = .09$).

Competitive level

Differences between competitive levels (school or club team vs. district team or above) were shown by higher level competitors having higher scores in Acceptance of Gamesmanship ($B = .22$; $p < .01$; $d = .34$), but not in Acceptance of Cheating ($B = .02$; $p > .05$; $d = .04$) or in Keeping Winning in Proportion ($B = -.03$; $p > .05$; $d = .05$).

Sport type

Differences between participants in team and individual sports were shown by team sport competitors scoring higher than individual sport athletes on Acceptance of Cheating ($B = .17$; $p < .05$; $d = .25$) and Acceptance of Gamesmanship ($B = .27$; $p < .01$; $d = .42$), but not on Keeping Winning in Proportion ($B = -.07$; $p > .05$; $d = .16$).

Discussion

This study employed exploratory modifications to the instrument within a restricted confirmatory framework. In so doing so, we developed three individual scales and subsequently a 3-factor model that appears conceptually sound, psychometrically valid, and invariant across gender. However, this model has to be cross-validated in the Study 5. Using this model, we found

that levels of Acceptance of Cheating and Gamesmanship were greater among males, older athletes, and athletes from team sports. Acceptance of gamesmanship was also higher among athletes at higher competitive levels. Keeping winning in proportion was higher in females, thus females exhibited a more moral position on each scale.

Study 5: Confirmation of the revised factorial structure, concurrent validity, and social desirability effects

The purposes of this study were (a) to confirm the structure of the gender-invariant model in a new sample, (b) to test concurrent validity with a related questionnaire, and (c) to test social desirability effects.

Confirmation of the structure of the model was carried out testing the same four types of sample as in Study 4, that is, the overall sample, male sample, female sample, and the parameter constrained overall sample. Concurrent validity was evaluated by examining the relationships between the three AMDYSQ scales and four subscales of the MSOS (Vallerand et al., 1997), a widely used test of sportspersonship orientation described in our introduction. These MSOS scales assessed Commitment to Participation (e.g. *I go to all practices*), Respect for Social Conventions (e.g. *I congratulate the opposition after I've lost*), Respect for Opponents (e.g. *I don't take advantage of an injured opponent*), and Respect for Rules and Officials (e.g. *I always obey the officials*). The wording of some items was adapted for use with a British sample. It was predicted that Keeping Winning in Proportion would show positive relationships with the MSOS scales, and that the Acceptance of Cheating and Acceptance of Gamesmanship scales would show negative relationships with them. In order to obtain error-free measures of these correlations, a 7-factor CFA was conducted with the three AMDYSQ scales and the four MSOS scales. In this case a robust ML method was used because there were too many parameters to employ WLS.

The susceptibility of the AMDYSQ to social desirability effects was tested by examining the correlations of the three composite scale scores with a composite social desirability score. It is a common problem in psychological research with self-report questionnaires for participants to give socially desirable responses that do not necessarily represent their true beliefs.

Method

The participants were 375 school or club competitors (males $n = 198$, females $n = 175$; 2 participants did not indicate their gender), aged 11–16 years ($M = 14.01$, $SD = 1.43$), who were drawn from four schools in southern England; they competed for their school or club, or at a higher level, in a range of team and individual sports.

Reynolds' (1982) 11-item Personal Reactions Questionnaire (PRQ) was used to evaluate social desirability effects. The PRQ is a short form of the 33-item Crowne–Marlowe Social Desirability Scale (Crowne & Marlowe, 1960). The instructions ask respondents to read a number of statements about the way in which people react to things that happen to them and to use a True/False response format to indicate how each item relates to them. Items are designed to elicit responses that typically indicate the possibility of socially desirable response pattern (e.g. *I sometimes get upset when I don't get my way*). The scale yields a social desirability index, or score, which can then be correlated with scores on other scales.

The participants completed three questionnaires in a counter-balanced order: (1) a revised version of the AMDYSQ that included the 9 items from the model developed in Study 4, (2) a version of the MSOS that included all items for the four pro-social scales described above, and (3) a version of the 11-item Personal Reactions Questionnaire (PRQ), modified for this age group.

Results

Confirmation of the revised factorial structure

Data screening showed that only one attitude item had abnormally high kurtosis (4.29), but 42% of item pairs failed a bivariate normality test; hence CFA's were again conducted employing WLS analysis. The smaller sample in this study was adequate to produce asymptotic covariance matrices because only nine variables were analysed in the 3-factor model. Using LISREL, we found that the Satorra–Bentler scaled χ^2 was not significant for the overall sample, the female sample, the male sample and the parameter constrained overall sample, thus demonstrating a good fit in all cases (Table 2). The fit indices were acceptable in all cases with the exception of the male sample whose fit indices were marginal. The fit of the model based on the parameter constrained overall sample was acceptable, but it improved when the constraints for factor variances and covariances were relaxed. This was because the correlations between Keeping Winning in Proportion and the other two factors were higher for females than males.

These results provide good confirmation of the structure of the model identified in Study 4. In both studies the model had an acceptable fit in the overall sample and, most importantly, was largely invariant across gender. In this study, the model fit was better for females than for males, but the reverse was true in Study 4, hence this may be a sampling variation. A consistent finding in both studies was that males showed lower inter-factor correlations than females, indicating clearer discrimination between the constructs in the male sample. Factor loadings for the model based on the parameter constrained overall sample are given in CFA-4 in Table 1.

Supplementary analyses showed that internal consistencies of the scales, assessed by Cronbach's α coefficient, were $\alpha = .73$ for Acceptance of Cheating, $\alpha = .75$ for Acceptance of Gamesmanship, and $\alpha = .60$ for Keeping Winning in Proportion. Although the value for Keeping Winning in Proportion is low, we would point out that Cronbach's α employs only a tau-equivalent model, which provides a less stringent test than CFA, which uses a congeneric model. The tau-equivalent model assumes that errors of all items are equivalent, which is rarely the case.

As in Study 4, males scored higher than females on Acceptance of Cheating ($B = .23$; $p < .05$; $d = .31$) and Acceptance of Gamesmanship ($B = .63$; $p < .01$; $d = .86$), but females scored higher than males on Keeping Winning in Proportion ($B = .27$; $p < .01$; $d = .36$).⁴

Concurrent validity

A 7-factor CFA was performed on the AMDYSQ and MSOS scales, using a robust ML method. This model had a good fit ($\chi^2 = 555.39$, $df = 356$, $p < .001$, $RMSEA = .044$, $SRMR = .063$, $CFI = .94$, $NNFI = .93$) The inter-factor correlations (see Table 3) show that, as predicted,

⁴We conducted the latent mean construct analysis only for gender because we thought it was relevant in the gender-invariance context. As the sample was smaller than the one surveyed in Study 4, we decided not to look for other subgroup mean differences in Study 5.

Table 3
Correlations among attitudes and social desirability

Scale	1	2	3	4	5	6	7	8
1. Cheating	—	.74**	-.42**	-.30**	-.37**	-.35**	-.42**	-.36**
2. Gamesmanship		—	-.32**	-.11*	-.22**	-.30**	-.42**	-.41**
3. Winning in proportion			—	.48**	.53**	.66**	.57**	.10
4. Commitment				—	.60**	.50**	.74**	.39**
5. Conventions					—	.82**	.76**	.21**
6. Opponents						—	.76**	.34**
7. Rules and officials							—	.39**
8. Social desirability								—

Note. AMDYSQ Scales: Acceptance of Cheating, Acceptance of Gamesmanship, Keep Winning in Proportion. MSOS scales: Commitment to Sport, Respect for Conventions, Respect for Opponents, Respect for Rules and Officials. PRQ Scale: Social Desirability.

Correlations among attitudes are taken from a confirmatory factor analysis.

Correlations with social desirability are Pearson product-moment correlations.

* $p < .05$, ** $p < .01$, $n = 307$ listwise.

the scale for Keeping Winning in Proportion had significant positive correlations with all the pro-social MSOS scales. In contrast, Acceptance of Cheating and Acceptance of Gamesmanship correlated significantly and negatively with these scales. The highest correlation for the AMDYSQ scale for Keeping Winning in Proportion was with the MSOS scale for Respect for Opponents. This is a logical relationship, because players who want to win at all costs would be unlikely to have respect for opponents. Similarly, the highest correlations between the AMDYSQ scales for Acceptance of Cheating and Gamesmanship and the MSOS scales were for the Respect for Rules and Officials scale. Since cheating is defined in terms of contravention of rules, and officials' interpretations of those rules, and gamesmanship is defined as a form of manipulation of the competitive contract, these results are to be expected and offer support for the concurrent validity of the AMDYSQ.

The low to moderate size of the correlations between the factors of the two instruments demonstrates that the AMDYSQ scales tap different facets of morality than those evaluated by the MSOS. Hence, the new instrument does not duplicate an existing measure, but provides new information for researchers. Inter-correlations among the three AMDYSQ scales (r 's ranged from $-.42$ to $.74$) were somewhat lower than those among the MSOS scales (r 's ranged from $.50$ to $.82$), indicating discriminant validity.

Social desirability effects

Descriptive statistics for the social desirability instrument indicated that scores were widely distributed, hence it discriminated well between participants ($M = 5.01$, $SD = 2.26$, Kurtosis = $.69$, Skewness = $.08$). Correlations with social desirability for the AMDYSQ attitude scales were not statistically significant for Keeping Winning in Proportion ($r = .10$), and significant but low for

Acceptance of Cheating ($r = -.36$) and Acceptance of Gamesmanship ($r = -.41$). Parallel social desirability correlations for the MSOS scales were significant and positive in direction (r 's ranged from .21 to .39). Thus the AMDYSQ pro-social scale showed a negligible social desirability effect, in contrast to the small to moderate effects displayed by the MSOS pro-social scales. The social desirability effects for the AMDYSQ anti-social scales were small to moderate, and similar to that of the most conceptually comparable MSOS scale (Respect for Rules and Officials, $r = .39$).

Discussion

This study provided strong psychometric support for the robustness and validity of the AMDYSQ. First, using an independent sample, the data cross-validated the fit of a gender-invariant model. Second, concurrent validity was demonstrated by positive correlations between the pro-social MSOS scales and Keeping Winning in Proportion, and by negative correlations between the same MSOS scales and Acceptance of Cheating and Acceptance of Gamesmanship. Third, the social desirability effects were negligible for Keeping Winning in Proportion, and low to moderate for the two anti-social scales of the AMDYSQ. The pattern of gender latent means on each of the three scales was consistent with what was observed in the previous study.

General discussion

The process described above has resulted in a new measure of attitudes towards moral decision making in youth sport (AMDYSQ) that is social psychological in its approach and differs in both content and structure from existing instruments. It accesses different facets of sportspersonship than those measured by the MSOS (Vallerand et al., 1997) in that it specifically addresses two essentially anti-social attitudes—the Acceptance of Cheating and of Gamesmanship—while also including a pro-social scale—Keeping Winning in Proportion. It also addresses different dimensions of moral attitudes from the JAMBYSQ (Stephens et al., 1997), while both have cheating in common. AMDYSQ has not been designed to address deontic judgements or moral atmosphere, but its format could be adapted to widen its application. For example the stem “In my team ...” could precede such a statement as “people think it is OK to cheat if nobody knows.”

While attitudes towards cheating have received direct treatment in the sport psychology literature (e.g. Stephens et al., 1997), we believe that this is the first time that a measure of gamesmanship has been reported. The distinction between these two concepts is important because, while cheating can be defined by reference to the explicit rule structure of a particular sport, gamesmanship constitutes a violation of the spirit of the contest that is not specifically addressed by the rules but harms the contractual integrity implicit in sport competitions. Furthermore, because its manifestations depend so much on the creativity of the protagonists, it is such a diverse construct as to be extremely difficult to describe comprehensively.

Scale content

The items that represent the constructs underlying the scales have undergone comprehensive statistical analyses in order to meet rigorous criteria. More importantly, they also represent

important conceptual elements of those constructs. In the Acceptance of Cheating scale, the item *I would cheat if I thought it would help me win* represents Reddiford's (1998) first feature of cheating, that of making illegitimate gains. The second item, *It is OK to cheat if nobody knows*, combines Reddiford's second and third features, notably successful concealment of intention. The third item, *If other people are cheating I think I can too*, goes beyond Reddiford's categories by highlighting the importance of normative influence on attitude formation; such type of influence is central to research on moral atmosphere. Thus although the scale has only three items, it represents different components of attitudes towards cheating.

In contrast, although gamesmanship embraces a wide variety of instrumental behaviours that may be limited only by the imagination of the contestants, we felt that it was advantageous at this stage to focus on a single identifiable aspect; hence, the scale developed herein comprises items that are interpersonal in nature and concerned with disturbing or distracting the opponent. The diversity of behaviours that are jointly represented by cheating and gamesmanship has made it difficult to devise an instrument to cover all eventualities but in which the two constructs are not considered synonymous. Whilst the correlations between them are positive, the magnitude is such as to suggest that there is still a significant amount of variance that is specific to each. Hence, we can conclude that the scales measure distinct but related constructs.

From the point of view of assessing moral attitudes it may be that gamesmanship is a particularly useful indicator on empirical as well as conceptual grounds. The data suggest that Acceptance of Gamesmanship may discriminate among participants more effectively than Acceptance of Cheating because (a) it is less skewed, and (b) it showed greater differences in gender, age, competitive level, and sport type. It has also related differently to other variables. For example, in comparison with the cheating scale, the gamesmanship scale showed a higher correlation with ego orientation and status values, and a lower correlation with moral values (Lee & Whitehead, 1999). In the present study it had lower correlations with the MSOS scales for commitment and conventions.

Although the discussion has emphasised the uniqueness of gamesmanship and cheating, the scale for Keeping Winning in Proportion is also important because it provides a pro-social rather than anti-social dimension and, hence, provides a degree of balance. Its relationship with the two anti-social scales is one of registering a degree of constraint upon any tendency to seek competitive success to the extent of employing methods that violate ethical principles.⁵ Further, the data indicate that this pro-social scale is not susceptible to social desirability effects.

Finally, with regard to the content of the instrument, examination of data collected during the construction of these scales suggests that it would be fruitful to develop further a scale for shame that assesses the emotional response to the actor's dishonourable behaviour. In this context, it would be instructive to distinguish between those responses that result from self-knowledge of transgressions (e.g. guilt), and the public knowledge thereof (e.g. shame; Reber, 1985).

⁵We found it important to focus on the moral content of this factor. In our earliest pilot work, not reported here, we identified one factor that simply contrasted winning with losing, and one that focused on a concern for other people and for the manner of winning. We developed the second factor in an attempt to identify some pro-social factors that lead participants to resist pressure to win at all costs and to value fairness more than winning. In ongoing work the reliability of this scale is improved by the item *Fairness is more important than winning*.

Gender invariance

An important feature in the construction of the AMDYSQ was the selection of items to provide scales that would be invariant across gender. Factor structure in questionnaires frequently differs for males and females; therefore mean differences may reflect a difference in the interpretation of the items (i.e., different factor structure) as well as a systematic difference in the degree of support for the construct. Although gender differences are always present and can fluctuate due to sampling variations, we hoped to reduce their effect by eliminating the items with the greatest gender differences in factor loadings. An alternative would have been to retain non-invariant items and construct gender-specific scales, but this strategy would have been less parsimonious and would prevent cross-gender comparisons.

The fit of the 3-factor gender-invariant model was acceptable when constrained for equality of factor loadings, equality of error variances, and equality of factor variances and covariances, however, an improved fit was obtained by relaxing the constraint for equality of factor variances and co-variances. The results showed lower correlations between the scales for males than for females. This may be explained by the typically greater sport participation rates of males, which may result in an increased ability to discriminate between seemingly similar concepts.

Gender invariance was achieved at the cost of reduction of the number of items per scale but the resulting brevity of the scales has both advantages and disadvantages. On the positive side, the short scales produced findings that were equivalent to those obtained with longer individual scales in earlier work (Lee, 1998) and, hence, are more parsimonious. Furthermore, shorter scales minimise potential problems that might arise with inattention among younger populations. On the negative side, the desire to meet stringent criteria of uni-dimensionality, such as can be achieved by item elimination using CFA, seems to militate against the identification of some aspects of the multifaceted concepts of cheating and gamesmanship. Both of these constructs embrace a variety of characteristics and behaviours that are not easily captured in a short psychometric scale. As Georgi (2002) has pointed out, a test is a symbolic instrument that is "...a substitute for a situation that is fuller, richer, more complex, more lived, and more ambiguous than that addressed by the test itself" (p. 4). However, the short scales given herein have extremely good coherence and internal reliability but necessarily, as a compromise, they measure the richness of complex concepts in a more limited fashion.⁶

Survey results: mean scores and subgroup mean differences

The data from a survey of a large sample of British adolescent athletes (i.e., Study 4) indicated that these participants do not support cheating, are largely neutral towards gamesmanship and like to keep winning in proportion. Essentially, they like to participate in an activity in which people play by the rules, do not take advantage of others and recognise that other things in life are more important. Hence, we consider that the athletes in our samples may be described as adopting an ethical approach to their sports participation. We recognise, however, that our conclusion may not generalise to older athletes as they attempt to progress from junior to senior levels of sport.

⁶The longer scales for the individual factors include items that might be considered by some to address additional facets of the core concepts, thus providing greater external validity (Table 1, CFA-2). The scales were gender-invariant individually, but not in the 3-factor model.

Limitations, applications, and future directions

While the AMDYSQ is potentially valuable for the investigation of immoral, or instrumental, attitudes in youth sport, in particular of attitudes towards gamesmanship, there remains scope for further elaboration of the latter construct by the development of a greater variety of items pertaining to a similar variety of sports situations. However, while that should result in greater external validity of the construct, the probability is that it would be more difficult to establish high levels of internal validity within the scale.

Although the reliability of the cheating and gamesmanship scales is good there is a need to improve that of Keep Winning in Proportion and to establish the stability of all three scales over time. But, in so doing, future investigators would be well advised to take account of the genesis of the instrument with adolescent populations, which are prone to rapidly changing attitudes, and conduct such studies with a variety of age groups and over varying time spans.

In Study 5 we initiated the evaluation of construct validity by examining concurrent validity with a criterion test of sportspersonship (MSOS: Vallerand et al., 1997). We also explored the validity of the responses of our participants by determining that there were no strong social desirability effects. Further studies are needed to test different facets of validity, and in particular to test whether relationships with other conceptually relevant variables conform to theoretical predictions. To date, our ongoing work indicates that these attitudes are correctly predicted by logical antecedents. Future research should also examine correlations between the ethical attitudes and their logical consequences.

The AMDYSQ may serve as a useful addition to existing instruments. Since its emphasis is on negative attitudes, it might usefully be employed in conjunction with the MSOS, which is comprised predominantly of positive scales. It would be fruitful to explore further whether different aspects of achievement orientations and motivational climate can predict support for cheating in sport. We have argued that the more general construct of values underpins the specific motivational orientations that are brought to bear in sports settings (Lee & Whitehead, 2001) and we have examined more complex relationships between values, achievement orientations and moral attitudes. Initial findings indicate that achievement orientations mediate the influence of values upon both pro- and anti-social attitudes in sport (e.g. Lee, Whitehead, Ntoumanis, & Hatzigeorgiadis, 2001). Hence, it is logical to propose that future investigations include personal values, and the perceived values and motivational climate of significant others and institutions as independent factors that influence moral attitudes.

In conclusion, the AMDYSQ appears to be a sound instrument with a strong factor structure and gender invariance, and is suitable for use in investigations of previously unexplored dimensions of moral decision making among youth sport populations. It has also provided some preliminary data on the level of ethical attitudes among young athletes.

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