Predicting cooperation in competitive conditions: The role of sportspersonship, moral competence, and emotional intelligence

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A B S T R A C T

Objectives: The purpose of the present study was to examine the predictive capabilities of sportspersonship, moral competence, and emotional intelligence on cooperation in varying competitive conditions.
Design: An experimental study was conducted, examining responses in a prisoner's dilemma game with manipulated conditions.
Method: Forty-three participants were randomly assigned to an accumulative or competitive condition, in which they contested 10 rounds of choosing to cooperate or defect.
Results: Whether the condition was accumulative or competitive did not significantly predict cooperation. In the final round of each contest however, cooperation was significantly reduced. Sportspersonship predicted a significant amount of cooperation percentage, while final round cooperation was predicted by emotional intelligence.
Conclusions: Cooperation is in part determined by individual levels of sportspersonship in all conditions except when actions are free of future consequence. In such conditions, emotional intelligence appears to be a stronger indicator of cooperation. The implications of the study are that researchers and practitioners should consider how to develop sportspersonship and emotional intelligence to boost cooperation in various domains.

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Cooperation is essential for ensuring that individuals are able to work together to maximise individual and team performance in a variety of domains. Despite this, research into the personal characteristics beyond the Big 5 personality traits that predict cooperation is relatively scarce. Simpson's paradox (1951) refers to findings demonstrating that most participants choose to cooperate more than defect in a prisoner's dilemma game (Flood, 1952), despite that to defect is more fruitful (Dawes & Thaler, 1988). There are several competing explanations for observed cooperation. Chater, Vlaev, and Grinberg (2008) explain that people will continue to cooperate because of the higher average payoff. Two further competing explanations include strong reciprocity and evolutionary legacy perspective. Strong reciprocity (e.g., Fehr & Gintis, 2007; Gintis, 2000) suggests 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 been vehemently rejected by some researchers. Burnham and Johnson (2005) and Hagen and Hammerstein (2006) suggest that the only real explanation for electing to cooperate is because they have not truly understood the game. Rather, they propose that evolutionary legacy hypothesis means behavioural anomalies are caused by human ancestral and modern conditions, whereby conserved brain systems misfire to motivate behaviour that are no longer relevant to a modern society (Burnham & Hare, 2007). This theory has received partial support from Kanazawa and Fontaine (2013), who found a positive correlation with general intelligence and defection.

The purpose of the present study was to examine the extent to which participants cooperate or defect in a prisoner's dilemma game under varying conditions, and how this was predicted by sportspersonship, moral competence, and EI. Research examining cooperation in sport settings is scarce. One would expect that an individual's level of sportspersonship would likely pre-dispose

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them towards cooperative behavior, but this has not previously been empirically examined. To determine if sportspersonship is a meaningful predictor of cooperation, we identified two concepts that have previously been identified as predictors of cooperation and tested the extent to which sportspersonship was able to explain variance in cooperation over and above these. Specifically, we assessed emotional intelligence, which Nelissen, Dijker, and De Vries (2007) reported as indicative of cooperation, and moral competence, which has been associated with cooperative moral decision making (Kutnick & Brees, 1982).

Participants took part in an accumulative condition, whereby prizes were awarded relative to total points accrued, or a competitive condition, whereby prizes were awarded relative to league table position. The final round of each contest presented a situation whereby there was no consequence. This represented the final round of a prisoner's dilemma match against an opponent, where there is no opportunity for revenge tactics should a participant suffer from defection. We hypothesized the following:

1. Participants cooperate more frequently in a cooperative condition than a competition condition
2. Sportspersonship, EI, and moral competence significantly predict cooperation in accumulative but not competitive conditions

We made no hypothesis regarding cooperation or the predictors of it in the final round of each contest.

1. Methods

1.1. Participants

Forty-three participants (males = 32; females = 11) aged from 18 to 40 years (M = 20.33, SD = 3.60), who indicated that they participated in competitive team (n = 36) and individual (n = 7) sports with an average playing experience of 10.86 years (SD = 6.07) volunteered to take part in the study.

1.2. Measures

Sportspersonship was measured using the 24-item compliant and principled sportspersonship scale (CAPSS; Perry, Clough, Crust, Nabb, & Nicholls, 2015). 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 EI was assessed using the 153-item trait emotional intelligence questionnaire (TEIQue; Petrides & Furnham, 2003), which includes 15 facets of EI and four higher-order factors; wellbeing, self-control, emotionality, and sociability. Participants are required to respond to each item on a 7-point Likert-type scale from 1 = *completely disagree* to 7 = *completely agree*.

Moral competence was assessed using the moral competence test (MCT; Lind, 1998, 2008), which presents participants with two moral dilemmas. Each dilemma presents a short background story culminating in a moral action. The participant must then indicate the extent to which they accept or reject (-3 = *I strongly reject*, $+3$ = *I strongly accept*) the action and six arguments supporting and six rejecting arguments the protagonist's solution. Each argument presents a moral orientation aligned to Kohlberg's stages of moralisation (1976). A moral judgement competence score (C-score; 1–100) is calculated as an individual's total response variation.

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 received three pence for every point they scored over the course of the day. In the competitive condition, the following award structure was used: First: £50, Second: £25, Third: £10. Those who finished outside of the top three places did not receive a prize. Points for cooperation (C) and defection (D) were awarded as follows: CvC: 3,3; DvD: 2,2; CvD: 1,4; DvC: 4,1.

Between eight and 13 participants took part on each day. After providing informed consent and completing the psychometric measures, participants were assigned to separate holding rooms to ensure that they were not aware of their opponent. 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 printed "C" or "D", both visible to the lead researcher, would then read the results with appointed scores to both participants. In total, there were 218 fixtures of 10 rounds each and therefore 2180 rounds in total. Each day took approximately four hours to complete.

1.4. Data analysis

Analyses included screening data, conducting an independent-samples and paired-samples t-test to test condition and tactical effects respectively, and bivariate correlations examined the strength of relationship between CAPSS subscales, EI, moral competence and cooperation in both conditions. To examine the predictive properties of condition and personal characteristics, cooperation was inserted as a dependent variable in a multiple linear regression model. Given the moderate sample size for type of analyses undertaken, post-hoc power analyses were conducted for each t-test and multiple regression and are reported as 1-β.

2. Results

2.1. Descriptive statistics

Tests for normality revealed no issues with skewness or kurtosis ($<$2) for all dependent variables. Internal consistency reached satisfactory levels for all variables ($\alpha \geq 0.70$). There were no significant correlations with moral competence and any dimension from the CAPSS or the TEIQue. Correlations between sportspersonship and EI are presented in Table 1. To correct for type 1 error as a result of multiple comparisons in all statistical analyses, Benjamini-Hochberg q was derived from calculating the False Discovery Rate (FDR; Benjamini & Hochberg, 1995). The null hypothesis was rejected if and only if $p < q$ and the 95% confidence interval did not contain zero. 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. Relationships existed throughout the sportspersonship and emotionality correlation matrix but the largest relationships were found between emotionality factors and game perception.

2.2. Hypothesis 1: condition effects

An independent-samples t-test examined the condition effects by testing for differences in all dependent variables in accumulative and competitive conditions. Sportspersonship, moral competence, and trait EI variables were included to screen for potential sampling