Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.
HOW INDIVIDUALISM AND COLLECTIVISM RELATE TO TEAM PERFORMANCE, TEAM COHESION, AND COLLECTIVE EFFICACY IN A MULTILEVEL ANALYSIS

A thesis presented in partial fulfilment of the requirements for the degree of

Master of Science in Psychology

at Massey University, Manawatū, New Zealand.

Lydia Lucy Edwards
2016
Abstract

Individual-level individualism (IND) and collectivism (COL), team performance, and team cohesion were investigated as predictors of collective efficacy using Hierarchical Linear Modelling (HLM). Participants were 153 elite netball players comprising 16 teams competing at either of two national tournaments. The netball players completed a questionnaire the day before their tournament consisting of Carron, Widmeyer, and Brawley’s (1985) Group Environment Questionnaire measuring four types of team cohesion (‘individual attractions to the group-social’, ‘individual attractions to the group-task’, ‘group integration-social’, and ‘group integration-task’), Triandis and Gelfand’s (1998) IND-COL scale (measuring horizontal individualism, horizontal collectivism, vertical individualism, and vertical collectivism), and a collective efficacy measure designed for netball players by Wilkinson, Fletcher, and Sachsenweger (2011). Team performance was measured as the percentage of games won by each team at their tournament. The four types of IND-COL were analysed as individual-level predictors, and performance and team cohesion were included as team-level predictors, of collective efficacy. HLM was used to analyse main effects of individual-level and team-level predictors, and any cross level interactions simultaneously. As overall team cohesion and team performance increased, collective efficacy increased, consistent with previous research. However, when the four types of cohesion were specified as team-level predictors, only the ‘individual attractions to the group-task’ (ATGT) type of cohesion significantly predicted collective efficacy, and performance no longer remained a significant predictor of collective efficacy. Furthermore, at high levels of ATGT, players higher on vertical collectivism tended to have greater collective efficacy. Whereas at low levels of ATGT, players higher on vertical collectivism tended to have lower collective efficacy. This type of interaction had not been explored in research previously, and was a new finding. Therefore, the study highlighted the value in research on how individual-level IND and COL relate to team cohesion and collective efficacy, and offered the first insight into their relationship in a team context.
Acknowledgements

Firstly, I would like to thank my supervisors Dr Richard Fletcher and Prof Stuart Carr for the opportunity to work with them. Their expertise, encouragement, and support throughout my thesis project was very much appreciated. Secondly, I would like to thank my husband Mark and my extended family and friends for their support, feedback, and assistance with proof reading. Finally, I would like to thank Netball New Zealand for their endorsement of my project, and to all the players competing at the New Zealand Secondary School Championships and the New Zealand Age Group Championships U19 and U23 in 2014, for their consideration and participation in my study.
# Table of Contents

Abstract ................................................................................................................................. i
Acknowledgements ................................................................................................................ ii
Table of Contents ................................................................................................................... iii
List of Tables ................................................................................................................................ vi
List of Figures ................................................................................................................................ viii
Chapter 1: Literature Review ................................................................................................... 1
  Introduction ........................................................................................................................... 1
    Definition of a Team ........................................................................................................... 1
    Unit of Analysis in Team Dynamics Research ..................................................................... 2
    Brief Introduction to Team Cohesion, Collective Efficacy, Team Performance, and Individual-Level Individualism and Collectivism ................................................................. 3
  Conceptualisation of Team Cohesion .................................................................................... 6
  Definition of Collective Efficacy .......................................................................................... 9
  Collective Efficacy and Team Cohesion ............................................................................... 10
  Conceptualisation of Individualism and Collectivism .......................................................... 15
  Multidimensionality of Individualism and Collectivism ......................................................... 17
  Level of Analysis of IND-COL ............................................................................................ 18
  IND-COL and Performance ................................................................................................... 19
  IND-COL, Team Cohesion, and Collective Efficacy ............................................................. 21
    IND-COL and Collective Efficacy ....................................................................................... 21
    IND-COL and Team Cohesion ............................................................................................ 22
  The Present Study .................................................................................................................. 24
    Addressing Limitations of Previous Research .................................................................... 24
    Aim and Hypotheses ........................................................................................................... 24

Chapter 2: Method .................................................................................................................... 26
  Participants ............................................................................................................................ 26
  Ethics ........................................................................................................................................ 26
  Materials .................................................................................................................................. 27
    Group Environment Questionnaire (GEQ) ........................................................................ 27
    Individualism and Collectivism Scale .................................................................................... 28
    Collective Efficacy Questionnaire ....................................................................................... 30
Team Performance .................................................................................................................. 30
Procedure ................................................................................................................................ 31
Data Analysis ............................................................................................................................. 32
Hierarchical Linear Modelling (HLM) .................................................................................. 34
  One-way ANOVA with random effects ............................................................................. 34
  Regression with means-as-outcomes ................................................................................. 35
  Random coefficient model ................................................................................................. 37
  Intercepts- and slopes-as-outcomes model .................................................................... 38

Chapter 3: Results .................................................................................................................... 41
  Descriptive Statistics ........................................................................................................... 41
  Confirmatory Factor Analysis ............................................................................................ 47
  Reliability Analysis ............................................................................................................ 52
  Analysis of Variance and ICCs .......................................................................................... 53
  Statistical Assumptions ....................................................................................................... 55
  Simple Correlations ............................................................................................................ 61
  HLM Analysis ..................................................................................................................... 63
    One-way ANOVA with random effects ............................................................................ 63
    Regression with means-as-outcomes ............................................................................... 64
      Regression with means-as-outcomes with GEQ subscales as predictors ................. 65
    Random-coefficient model .............................................................................................. 67
    Intercepts- and slopes-as-outcomes model .................................................................. 70
      Intercepts- and slopes-as-outcomes model with ATGT as a predictor variable ........ 74

Chapter 4: Discussion .............................................................................................................. 78
  Implications of the Findings ............................................................................................... 83
  Strengths of the Study ......................................................................................................... 84
  Recommendations for Future Research ............................................................................ 87
  Conclusion ............................................................................................................................. 88

References .................................................................................................................................. 90

Appendices ............................................................................................................................... 99
  Appendix A: Information Sheet for Participants ............................................................. 99
  Appendix B: Consent Form for Participants ................................................................. 101
  Appendix C: Information Sheet for Parents/Guardians ...................................................... 102
  Appendix D: Consent Form for Parents/Guardians ............................................................. 104
  Appendix E: Demographic Section of Questionnaire ......................................................... 105
List of Tables

Table 1. Means and Standard Deviations for Demographic Questions Answered by the 16 Teams ........................................................... 42

Table 2. GEQ Mean Scores for Total Sample and Individual Teams .................. 44

Table 3. Collective Efficacy Mean Scores for Overall Scale and Subscales .......... 45

Table 4. Mean Scores for IND-COL Scale Subscales .................................. 46

Table 5. Tournament Results for the Participating Teams from The U19 and U23 Age Group Championships and The New Zealand Secondary School Netball Championships ...................................................... 46

Table 6. Fit Indices for Confirmatory Factor Analyses on the IND-COL Scale, GEQ, Collective Efficacy Scale ................................................................................................................. 48

Table 7. Results of Confirmatory Factor Analysis, Showing Standardised Factor Loadings and Correlations for the Reduced Individualism and Collectivism Scale ...... 49

Table 8. Results of Confirmatory Factor Analysis, Standardised Factor Loadings and Correlations for the Reduced GEQ ................................................................. 50

Table 9. Results of Confirmatory Factor Analysis, Standardised Factor Loadings and Correlations for the Collective Efficacy Scale .................................................. 51

Table 10. Internal Consistency Reliabilities for the Three Scales ....................... 52

Table 11. One-Way Analysis of Variance and Intraclass Correlations for the Collective Efficacy Scale ............................................................................................................. 53

Table 12. One-Way Analysis of Variance and Intraclass Correlations for the GEQ .... 54

Table 13. Analysis of Variance and Intraclass Correlations for the IND-COL Subscales ......................................................................................................................... 55

Table 14. Statistical Tests for Normality ............................................................. 59

Table 15. Simple Correlations Between Player Level Variables and the Two Outcome Variables of Mean Collective Efficacy and GEQ ......................................................... 62

Table 16. Simple Correlations Between Team-level Variables .......................... 62

Table 17. Results of One-Way Analysis of Variance with Random Effects for Collective Efficacy ........................................................................................................... 64

Table 18. Results from the Means-as-Outcomes Model 1 with Collective Efficacy as the Outcome Variable ................................................................. 65

Table 19. Results from the Means-as-Outcomes Model 2 with Collective Efficacy as the Outcome Variable ................................................................. 67

Table 20. Results from the Random-Coefficient Model with Collective Efficacy as the Outcome Variable ................................................................. 68

Table 21. Results from the Intercepts- and Slopes-as-Outcomes Model with Collective Efficacy as the Outcome Variable ................................................................. 72

Table 22. Proportion of Variance Explained in the Full Hierarchical Linear Model ... 74
Table 23. Results from the Intercepts- and Slopes-as-Outcomes Model with AGTG as the Team-Level Predictor ................................................................. 75

Table 24. Proportion of Variance Explained in the Full Hierarchical Linear Model with ATGT ................................................................. 76
List of Figures

**Figure 1.** Diagram showing possible main effects between player-level predictor variables, team-level predictor variables, and the team-level outcome variable of collective efficacy ................................................................. 6

**Figure 2.** Normal probability plot and corresponding histogram showing the extent to which the collective efficacy data resembles a normal distribution ......................... 56

**Figure 3.** Normal probability plot and corresponding histogram showing the extent to which the GEQ data resembles a normal distribution ........................................... 56

**Figure 4.** Normal probability plot and corresponding histogram showing the extent to which the horizontal individualism data resembles a normal distribution ............... 57

**Figure 5.** Normal probability plot and corresponding histogram showing the extent to which the vertical individualism data resembles a normal distribution ................... 57

**Figure 6.** Normal probability plot and corresponding histogram showing the extent to which the horizontal collectivism data resembles a normal distribution .......... 58

**Figure 7.** Normal probability plot and corresponding histogram showing the extent to which the vertical collectivism data resembles a normal distribution .................... 58

**Figure 8.** Normal probability plot and corresponding histogram showing the extent to which the team performance data resembles a normal distribution ....................... 59

**Figure 9.** Scatterplots to test for homoscedasticity and linearity between predictor variables and collective efficacy as the outcome variable ............................................. 60

**Figure 10.** Line graph showing GEQ as a moderator of the relationship between vertical collectivism and collective efficacy ............................................................... 73

**Figure 11.** Line graph showing GEQ as a moderator of the relationship between horizontal collectivism and collective efficacy ............................................................. 73

**Figure 12.** Line graph showing the ‘attraction to the group-task’ cohesion (ATGT) subscale as a moderator of the relationship between vertical collectivism (VC) and collective efficacy ............................................................................................... 76

**Figure 13.** Scatterplots showing the Mahalanobis Distances to test for the assumption of normality in the residuals for the 16 teams in the final fitted models with collective efficacy as the outcome variable ..................................................... 115

**Figure 14.** Normal Q-Q plots of the log of the residual within-team standard deviation for the 16 teams, from the final fitted fixed effect model where collective efficacy is the outcome variable .............................................................. 116

**Figure 15.** Scatterplots to test for linearity, between residuals for mean GEQ and the intercepts, and between residuals for “percentage games won” and the intercepts .... 117

**Figure 16.** Scatterplot to test for linearity, between residuals for ATGT and the intercepts .................................................................................................................. 118