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.
AN INVESTIGATION OF THE PREDICTORS OF COLLECTIVE EFFICACY IN ELITE FEMALE ATHLETES: A MULTILEVEL ANALYSIS

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

Master of Science
in
Psychology

at Massey University, Albany, New Zealand.

Heidi Melva Wilkinson

2000
Abstract

The aim of the study was to investigate potential predictors of collective efficacy using Hierarchical Linear Modelling (HLM). HLM analyses both individual and player level effect simultaneously, and thus addresses the ongoing issue in collective efficacy research, namely the unit of analysis. The participants were 318 female elite level netball players from 31 teams. Participants were asked to complete a questionnaire within 24 hours of the start of one of two national level competitions. The questionnaire included a demographic section and four measures (i.e. Perceptions of Success, Sources of Sport Confidence, Group Environment Questionnaire, and a Collective Efficacy measure developed for the present study). The analysis consisted of building three different models, in which each conformed to the procedure suggested by Bryk and Raudenbush (1992). Results suggest that the team level predictors (mean team meetings and GEQ subscales) accounted for approximately 73% of the variance in collective efficacy. Overall, mastery orientations of the POS (at the player level), length of time spent in team meetings, and team cohesion (G1-Task subscale) (at the team level) were found to be significant predictors of collective efficacy. The results do not support Spink (1990b) who found the social aspects of team cohesion to be related to collective efficacy, although these results may have been due to Type I error. However, the results support previous research by Paskevich, Brawley, Dorsch and Widmeyer (1999) who found task related aspects of team cohesion to be related to collective efficacy. In the present study, collective efficacy was found to be a team level characteristic, and psychologists should keep this in mind when developing and training sports teams.
Acknowledgements.

I would first like to thank my supervisor, Dr Richard Fletcher, for his invaluable knowledge, support and enthusiasm over the last year. I would also like to thank my close friends and family, whose love, support and patience to listen encouraged me to continue trying when the going got tough. I would like to thank my parents especially for their efforts which enabled me to travel to the competitions to collect data.

A big thanks to Netball New Zealand who gave me access to the national level netball teams. Finally, I would like to thank Murray Armstrong, Frances Robinson and Lynnette Marchant for their unpaid help as data collectors.
Table of Contents

Abstract.................................................................................................................. i
Acknowledgements............................................................................................. ii
Table of Contents .............................................................................................. iii
List of Tables ....................................................................................................... v

Chapter One ...................................................................................................... 1
  Introduction.......................................................................................................... 1

Chapter Two ....................................................................................................... 5
  Literature Review .............................................................................................. 5
    2.1 Self-efficacy Theory..................................................................................... 5
      2.1.1 Predictors of Self-efficacy..................................................................... 8
      2.1.2 Predictors of Self-efficacy in sport......................................................... 11
      2.1.3 Outcomes of Self-efficacy in sport.......................................................... 12
    2.2 Collective Efficacy Theory.......................................................................... 13
      2.2.1 Outcomes of Collective Efficacy in sport.............................................. 16
      2.2.2 Predictors of Collective Efficacy in sport.............................................. 19
    2.3 Collective efficacy issues.......................................................................... 25
      2.3.1 Method for separating individual and group level effects................... 27
      2.3.2 Hierarchical Linear Modelling.............................................................. 27
      2.4 Aims of the study...................................................................................... 31

Chapter Three ................................................................................................... 32
  Method................................................................................................................ 32
    3.1 Participants.................................................................................................. 32
    3.2 Materials................................................................................................. 33
3.2.1 Perceptions of Success Questionnaire (POS) ........................................ 33
3.2.2 Group Environment Questionnaire (GEQ) ........................................ 34
3.2.3 Sources of Sport Confidence Questionnaire (SSCQ) ............................ 35
3.2.4 Collective Efficacy Questionnaire .................................................... 37
3.3 Procedure ............................................................................................... 40
3.3.1 Data Analysis .................................................................................... 41

Chapter Four ............................................................................................... 49

Results ......................................................................................................... 49
4.1 Descriptive Statistics ........................................................................... 49
4.2 Factor Analysis .................................................................................... 53
4.3 Reliability Analysis ............................................................................ 59
4.4 Analysis of Variance .......................................................................... 61
4.5 Statistical Assumptions ........................................................................ 63
4.6 HLM Analysis ..................................................................................... 65
    4.6.1 One-way ANOVA with random effects ........................................ 65
    4.6.2 Random coefficient model I ........................................................ 66
    4.6.3 Intercepts- and slopes-as-outcomes model I ............................... 69
    4.6.4 Random coefficient model II ....................................................... 71
    4.6.5 Intercepts- and slopes-as-outcomes model II ............................... 74
    4.6.6 Intercepts- and slopes-as-outcomes model III ............................. 77

Chapter Five ............................................................................................... 82

Discussion .................................................................................................. 82

References ................................................................................................. 92

Appendix A ................................................................................................. 101
    Questionnaire and Consent form .......................................................... 101

Appendix B ................................................................................................. 113
    Plots of Residuals for Assumption Checking ......................................... 113
List of Tables

Table 1 ...................................................................................................................................... 50
Means for demographic questions for Teams 1-31 (N = 318)

Table 2 ...................................................................................................................................... 52
Mean scores for four measures for total sample and individual teams

Table 3 ...................................................................................................................................... 53
Factor loadings and correlations for POS items

Table 4 ...................................................................................................................................... 54
Factor loadings and correlations for GEQ items (reduced version)

Table 5 ...................................................................................................................................... 56
Factor loadings and correlations for SSCQ items (reduced version)

Table 6 ...................................................................................................................................... 58
Factor loadings and correlations for collective efficacy items

Table 7 ...................................................................................................................................... 60
Internal consistency reliabilities for four measures (N= 318)

Table 8 ...................................................................................................................................... 62
Analysis of variance and intraclass correlations for team level variables.

Table 9 ...................................................................................................................................... 65
Results of one-way ANOVA with random effects.

Table 10 .................................................................................................................................... 68
Results of the random coefficient model I (POS and SSCQ total scores).
Table 11.................................................................................................................................... 70
Results of the intercepts- and slopes-as-outcomes model I
(with POS, SSCQ and GEQ total scores).

Table 12.................................................................................................................................... 73
Results of the random coefficient model II (with subscale scores for POS and SSCQ).

Table 13.................................................................................................................................... 76
Results of the intercepts-and slopes-as-outcomes model II (with significant POS and SSCQ
subscales and significant level two variables).

Table 14.................................................................................................................................... 79
Results for intercepts- and slopes-as-outcomes model III
(with significant POS and SSCQ subscales, mean team years and GEQ subscales).