

Wilfrid Laurier University

Scholars Commons @ Laurier

---

Theses and Dissertations (Comprehensive)

---

2020

## THE NATURE OF INFORMAL ROLES IN INTERDEPENDENT SPORT TEAMS

Jeemin Kim  
kimx0650@mylaurier.ca

Follow this and additional works at: <https://scholars.wlu.ca/etd>



Part of the [Other Kinesiology Commons](#), [Social Psychology Commons](#), and the [Sports Studies Commons](#)

---

### Recommended Citation

Kim, Jeemin, "THE NATURE OF INFORMAL ROLES IN INTERDEPENDENT SPORT TEAMS" (2020). *Theses and Dissertations (Comprehensive)*. 2234.  
<https://scholars.wlu.ca/etd/2234>

This Dissertation is brought to you for free and open access by Scholars Commons @ Laurier. It has been accepted for inclusion in Theses and Dissertations (Comprehensive) by an authorized administrator of Scholars Commons @ Laurier. For more information, please contact [scholarscommons@wlu.ca](mailto:scholarscommons@wlu.ca).

THE NATURE OF INFORMAL ROLES IN INTERDEPENDENT SPORT TEAMS

by

Jeemin Kim

Bachelor of Science, McMaster University, 2013

Master of Arts, McGill University, 2015

DISSERTATION

Submitted to the Department of Kinesiology and Physical Education

in partial fulfillment of the requirements for

Doctor of Philosophy in Kinesiology

Wilfrid Laurier University

© Jeemin Kim 2019

## COPYRIGHT

- Table 1 was adapted from “Informal roles in sport teams,” by C. J. Cope, M. A. Eys, M. R. Beauchamp, R. J. Schinke, and G. Bosselut, 2011, *International Journal of Sport and Exercise Psychology*, 9(1), 19-30 (Taylor & Francis Ltd, <http://www.tandfonline.com>). Taylor & Francis permits the use of its contents for a dissertation:



The screenshot shows the RightsLink interface. At the top, there are logos for the Copyright Clearance Center and RightsLink, along with navigation buttons for Home, Create Account, Help, and a Live Chat bubble. Below the logos, the Routledge Taylor & Francis Group logo is displayed. The main content area shows the following metadata:

- Title:** Informal roles on sport teams
- Author:** Cassandra J. Cope, , Mark A. Eys, et al
- Publication:** International Journal of Sport and Exercise Psychology
- Publisher:** Taylor & Francis
- Date:** Mar 1, 2011
- Rights managed by Taylor & Francis

To the right of the metadata is a 'LOGIN' button and a text box that reads: "If you're a copyright.com user, you can login to RightsLink using your copyright.com credentials. Already a RightsLink user or want to learn more?"

Below the metadata, there is a section titled "Thesis/Dissertation Reuse Request" with the text: "Taylor & Francis is pleased to offer reuses of its content for a thesis or dissertation free of charge contingent on resubmission of permission request if work is published." At the bottom of this section are two buttons: "BACK" and "CLOSE WINDOW".

At the very bottom of the screenshot, there is a copyright notice: "Copyright © 2019 Copyright Clearance Center, Inc. All Rights Reserved. Privacy statement. Terms and Conditions. Comments? We would like to hear from you. E-mail us at [customercare@copyright.com](mailto:customercare@copyright.com)"

- Project One was published in the *Psychology of Sport and Exercise Journal* (Elsevier). No copyright clearance was required:

### “Personal Use

Authors can use their articles, in full or in part, for a wide range of scholarly, non-commercial purposes as outlined below:

...Inclusion in a thesis or dissertation (provided that this is not to be published commercially)”

Information can be found on: <https://www.elsevier.com/about/policies/copyright>.

- Project Two was published in the journal *Sport, Exercise, and Performance Psychology*. Copyright © 2019 American Psychological Association. Reproduced with permission. Kim, J., Godfrey, M., & Eys, M. (2019). The antecedents and outcomes of informal roles in interdependent sport teams. *Sport, Exercise, and Performance Psychology*, Advance online publication. <http://dx.doi.org/10.1037/spy0000179>.



RightsLink®

Account  
Info

Help



AMERICAN  
PSYCHOLOGICAL  
ASSOCIATION

**Title:** The antecedents and outcomes of informal roles in interdependent sport teams.  
**Author:** Kim, Jeemin; Godfrey, Michael; Eys, Mark  
**Publication:** Sport, Exercise, and Performance Psychology  
**Publisher:** American Psychological Association  
**Date:** Jul 1, 2019  
Copyright © 2019, American Psychological Association

Logged in as:  
Jeemin Kim  
Account #: 3001455956

LOGOUT

## Order Completed

Thank you for your order.

This Agreement between Jeemin Kim ("You") and American Psychological Association ("American Psychological Association") consists of your order details and the terms and conditions provided by American Psychological Association and Copyright Clearance Center.

License number	Reference confirmation email for license number
License date	Aug. 06 2019
Licensed Content Publisher	American Psychological Association
Licensed Content Publication	Sport, Exercise, and Performance Psychology
Licensed Content Title	The antecedents and outcomes of informal roles in interdependent sport teams.
Licensed copyright line	Copyright © 2019, American Psychological Association
Licensed Content Author	Kim, Jeemin; Godfrey, Michael; Eys, Mark
Licensed Content Date	Jul 1, 2019
Licensed Content Volume	S
Licensed Content Issue	0
Type of use	Thesis/Dissertation
Requestor type	Author of requested content
Format	Print, Electronic
Portion	chapter/article
Page range of chapter/article	1-15
Number of pages in chapter/article	15
Rights for	Main product and any product related to main product
Duration of use	
Creation of copies for the disabled	no
With minor editing privileges	no
For distribution to	
In the following language(s)	Original language of publication
With incidental promotional use	no
Lifetime unit quantity of new product	0 to 499
The requesting person/organization	Jeemin Kim, Ph.D. Candidate at Wilfrid Laurier University
Order reference number	
Title of your thesis / dissertation	THE NATURE OF INFORMAL ROLES IN INTERDEPENDENT SPORT TEAMS
Expected completion date	Sep 2019
Expected size (number of pages)	214
Requestor Location	Jeemin Kim 1360 main street east, unit 407  Milton, ON L9T7S5 Canada Attn: Jeemin Kim
Billing Type	Invoice
Billing address	Jeemin Kim 1360 main street east, unit 407  Milton, ON L9T7S5 Canada Attn: Jeemin Kim
Total	0.00 CAD

CLOSE WINDOW

Copyright © 2019 Copyright Clearance Center, Inc. All Rights Reserved. [Privacy statement](#). [Terms and Conditions](#). Comments? We would like to hear from you. E-mail us at [customer@copyright.com](mailto:customer@copyright.com)

## FORMAT, CO-AUTHORSHIP, AND STATEMENT OF ORIGINALITY

This dissertation follows a multiple manuscript option structure, such that the document begins with a general introduction section, followed by three stand-alone projects, and concludes with a general discussion. Though the research and writing included in this document is my original work, there are several contributors to the projects who should be acknowledged. The first project was published in the *Psychology of Sport and Exercise* journal, and is co-authored by Dimitri Gardant (Doctoral Student, Université de Montpellier) and Dr. Grégoire Bosselut (Assistant Professor, Université de Montpellier) who collected and provided the dataset pertaining to the French sample (Study 1) that was integrated in this manuscript. The second manuscript was published in the *Sport, Exercise, and Performance Psychology* journal, and is co-authored by Michael Godfrey (Doctoral Candidate, Wilfrid Laurier University) who provided assistance with collecting data and preparing the manuscript. The third manuscript was submitted and under review in an academic journal at the time of submitting this document. Finally, I would like to acknowledge the contributions of Dr. Mark Eys who provided valuable insight throughout the research processes for each project. Dr. Mark Eys is a co-author for all three projects included in this dissertation.

Because of this format, there are minor redundancies in the background literature and rationale across the papers. Regardless, each paper included in this dissertation makes collective contributions to the overall purpose of the dissertation pertaining to the examination of the nature of informal roles in interdependent sport teams.

## ABSTRACT

The degree to which athletes understand and execute their *formal* role responsibilities (i.e., prescribed by coaches) is important for individual and group functioning (Eys, Schinke, Surya, & Benson, 2014). Recent literature suggested that *informal* roles can emerge within sport teams more naturally without coaches' explicit assignments (e.g., team comedians, distracters), and have significant influences on team functioning (Cope, Eys, Beauchamp, Schinke, & Bosselut, 2011). This doctoral dissertation examined the nature of informal roles within interdependent sport teams, focusing on their antecedents and outcomes. Three separate projects were conducted. Project One examined athletes' personality in the big five dimensions (McCrae & Costa, 2010) as antecedents of their informal role occupancy assessed via self- and teammate-identification ( $N = 535$ ). Project Two examined whether athletes' personality assessed near the beginning of the competitive season predicted their informal role occupancy at a later point of their season, and whether the presence of informal roles influenced valued outcome perceptions (e.g., group cohesion, athlete satisfaction) assessed closer to the end of the season ( $N = 286$ ). Projects One and Two demonstrated that team comedians tended to be more extraverted (i.e., more outgoing) and distracters tended to be less conscientious (i.e., less dependable), although several inconsistent associations were also noted between personality and informal role occupancy across the two projects. Project Two further revealed that the presence of several informal roles affected athletes' perceptions of group cohesion and satisfaction. Project Three employed an instrumental case study design with two sport teams, whereby different types of information (personality and informal role occupancy via questionnaires, athlete behaviours via video-recordings of competitions, interviews with coaches and athletes) were collected to conduct an in-depth examination of informal role emergence. The results revealed that those who

occupied important task- and social-oriented informal roles, compared to those who did not, had higher tenure, garnered more playing time, and showed higher levels of activity during competitions. The interview results identified several factors that can influence informal role emergence, which pertained to either the role occupants (e.g., tenure, personal backgrounds) or the context (e.g., coach influence). Overall, this dissertation makes meaningful contributions to the group dynamics literature by highlighting important factors involved in the processes by which informal roles arise in groups, as well as their potential impact. Insight derived from this dissertation provides a foundation to continue this line of inquiry to further advance the understanding of the complex nature of informal roles.

## ACKNOWLEDGEMENTS

First and foremost, to my supervisor Dr. Mark Eys: Even after four years of your training on effective writing, I am not sure if I can sufficiently describe the value of being your student. One of your greatest strengths is that you do not only teach the important values/practices to your students, but also demonstrate them yourself. They include, attending to small details while keeping in mind the bigger picture, giving relentless feedback to peers but also being open to feedback from peers, setting high but realistic expectations, and having the courage to challenge conventional thoughts, just to list a few. I will keep these values in my mind, and hope to positively influence others as you did to me, as I move forward in my career. Thank you for allowing me the opportunity to have learned from you and I look forward to our continued collaboration. I would also like to express my gratitude for my committee members, Dr. Jennifer Robertson-Wilson and Dr. Kim Dawson, as well as Dr. Judy Goss, Dr. Todd Loughhead, and Dr. Philp Sullivan, who have shared their invaluable perspectives over various stages of my studies that made this journey a much more meaningful and rewarding one. Thank you.

There are several other individuals whom I must thank for being great friends, colleagues, and informal mentors. Particularly, Michael Godfrey, who also goes by many other names (e.g., Jason, Bill), is a person who deserves a special mention. Having such a passionate, determined, supportive, and somewhat funny person as a partner for this journey was a privilege. I will miss all our spontaneous conversations/discussions that varied in their importance and usefulness. Thank you for being such a good friend and I look forward to our continued friendship and work together, and congratulations on finally occupying the most senior position within the lab. I would also like to thank Dr. Blair Evans, Dr. Alex Benson, Dr. Sara Scharoun-Benson, and Mark Surya. We know that in addition to quality leadership from coaches, athlete



leaders and mentors are critical for younger athletes' development. Similar to this, I have benefited immensely from your genuine mentorship and advice over the years. Thank you. To all of my former labmates: Taylor, Brennan, Theo, Dave, Erica, and Madeline, thank you for being an important part of my journey and for all the moments that I will cherish.

Finally, I would like to express my sincere thanks to my mom, dad, sister, parents-in-law, and siblings-in-law, who have provided me with tremendous amounts of support over the years. Suzy, I always learn from your passion, positivity, and wisdom. Your patience and generosity have made me the man I am today. Thank you and I look forward to our future together, wherever it takes us.

## TABLE OF CONTENTS

COPYRIGHT.....	i
FORMAT, CO-AUTHORSHIP, AND STATEMENT OF ORIGINALITY .....	iii
ABSTRACT.....	iv
ACKNOWLEDGEMENTS.....	vi
LIST OF APPENDICES .....	xi
LIST OF TABLES.....	xii
LIST OF FIGURES.....	xiii
LIST OF SUPPLEMENTAL MATERIALS (PROJECT ONE).....	xiv
LIST OF SUPPLEMENTAL MATERIALS (PROJECT TWO).....	xv
LIST OF SUPPLEMENTAL MATERIALS (PROJECT THREE) .....	xvi
GENERAL INTRODUCTION.....	1
References .....	10
PROJECT ONE: ATHLETE PERSONALITY CHARACTERISTICS AND INFORMAL ROLE OCCUPANCY IN INTERDEPENDENT SPORT TEAMS .....	13
Study 1 .....	18
Method .....	18
Results.....	19
Summary of Findings (Study 1) .....	21
Study 2 .....	22
Method .....	22
Results.....	23
Summary of Findings (Study 2) .....	27
General Discussion (Project One) .....	28
Limitations and Future Directions.....	33
Conclusion.....	35
Transition Statement .....	36
References .....	37
PROJECT TWO: THE ANTECEDENTS AND OUTCOMES OF INFORMAL ROLES IN INTERDEPENDENT SPORT TEAMS .....	43
Methods.....	48

Procedures and Participants .....	48
Measures.....	49
Data Analysis.....	51
Results.....	52
Personality Predicting Informal Role Occupancy .....	53
Informal Role Occupancy Predicting Outcomes .....	55
Discussion.....	56
Personality Predicting Informal Role Occupancy .....	56
Informal Role Occupancy Predicting Outcomes .....	60
Limitations.....	63
Conclusion.....	64
Transition Statement .....	66
References .....	67
PROJECT THREE: THE DYNAMICS OF INFORMAL ROLE DEVELOPMENT WITHIN SPORT TEAMS: A CASE STUDY APPROACH.....	71
Methods.....	75
Design and Philosophical Paradigm .....	75
The Case .....	76
Data Collection and Preparation.....	77
Data Analysis.....	80
Methodological Integrity .....	83
Results/Discussion .....	84
Role Profiles .....	84
Interviews.....	90
General Discussion.....	98
Conclusion.....	101
References .....	102
GENERAL DISCUSSION.....	106
Limitations and Future Directions.....	109
Conclusion.....	113
References .....	114
APPENDICES .....	117
TABLES.....	150

FIGURES.....	166
SUPPLEMENTAL MATERIALS (PROJECT ONE) .....	169
SUPPLEMENTAL MATERIALS (PROJECT TWO) .....	179
SUPPLEMENTAL MATERIALS (PROJECT THREE) .....	191

## LIST OF APPENDICES

Appendix A: Athlete Demographic Questionnaire (French Sample; Project One) .....	118
Appendix B: Informal Role Questionnaire – French (Project One) .....	119
Appendix C: Big Five Inventory – French (Project One).....	120
Appendix D: Research Ethics Board Approval (Project One).....	122
Appendix E: Letter of Informed Consent (Project One).....	123
Appendix F: Athlete Demographic Questionnaire (Canadian Sample in Project One, Projects Two and Three).....	125
Appendix G: Informal Role Questionnaire .....	126
Appendix H: Research Ethics Board Approval (Project Two).....	133
Appendix I: Letter of Informed Consent (Project Two) .....	134
Appendix J: Big Five Inventory (BFI).....	136
Appendix K: Group Environment Questionnaire (GEQ) .....	137
Appendix L: Athlete Satisfaction Questionnaire (ASQ) .....	140
Appendix M: Intentions to Return .....	142
Appendix N: Research Ethics Board Approval (Project Three).....	143
Appendix O: Letter of Informed Consent (Project Three).....	144
Appendix P: Letter of Informed Consent (Project Three; Interview Portion) .....	146
Appendix Q: Coach Demographic Questionnaire (Project Three) .....	148
Appendix R: Interview Guide (Project Three).....	149

## LIST OF TABLES

<b>Table 1.</b> List of Informal Roles .....	151
<b>Table 2.</b> Athletes' Informal Role Occupancy (Project One) .....	152
<b>Table 3.</b> Personality Differences between Self-Identified Role Occupants vs. Non-Role Occupants (Project One; Study 1).....	153
<b>Table 4.</b> Congruence between Self-Identification and Teammate-Identification (Project One; Study 2).....	155
<b>Table 5.</b> Personality Differences between Self-Identified Role Occupants vs. Non-Role Occupants (Project One; Study 2).....	156
<b>Table 6.</b> Multiple Regression Summary (Stepwise Entry; Project One; Study 2) .....	158
<b>Table 7.</b> Personality Predicting Received Teammate-Nominations as Role Occupants (Project Two).....	160
<b>Table 8.</b> Bivariate Correlations between the Percentage of Outgoing Nominations and Dimensions of Outcome Variables (Project Two).....	161
<b>Table 9.</b> The Percentage of Outgoing Role Nominations Predicting Dimensions of Outcome Variables (Project Two).....	162
<b>Table 10.</b> Descriptions of Coded Behaviour Categories (Project Three).....	163
<b>Table 11.</b> Personality and Demographics Summary for Each Role Category (Project Three) ..	164
<b>Table 12.</b> Behaviour Frequencies for Each Role Category (Project Three).....	165

## LIST OF FIGURES

<i>Figure 1.</i> Role episode model .....	167
<i>Figure 2.</i> A proposed conceptual representation of informal role emergence. ....	168

## LIST OF SUPPLEMENTAL MATERIALS (PROJECT ONE)

<b>Supplemental Material (Project One) 1. Descriptive Information Regarding Participant Demographics and Big Five Personality.....</b>	<b>170</b>
<b>Supplemental Material (Project One) 2. Personality Differences between Self-Identified Role Occupants vs. Non-Role Occupants (Study 1) .....</b>	<b>171</b>
<b>Supplemental Material (Project One) 3. Personality Differences between Self-Identified Role Occupants vs. Non-Role Occupants (Study 2) .....</b>	<b>174</b>
<b>Supplemental Material (Project One) 4. Bivariate Correlations between Percentages of Teammate Nominations and Athletes' Big Five Personality Dimensions (Study 2).....</b>	<b>177</b>
<b>Supplemental Material (Project One) 5. Bivariate Correlations among Percentages of Teammate-Nominations across Roles (Study 2).....</b>	<b>178</b>



## LIST OF SUPPLEMENTAL MATERIALS (PROJECT TWO)

<b>Supplemental Material (Project Two) 1.</b> Participant Retention.....	180
<b>Supplemental Material (Project Two) 2.</b> Descriptive Statistics for Measured Variables .....	181
<b>Supplemental Material (Project Two) 3.</b> Informal Role Occupancy .....	182
<b>Supplemental Material (Project Two) 4.</b> Bivariate Correlations among Percentages of Received Teammate-Nominations across Roles.....	183
<b>Supplemental Material (Project Two) 5.</b> Bivariate Correlations between Big Five Personality Dimensions and Percentages of Received Teammate-Nominations .....	184
<b>Supplemental Material (Project Two) 6.</b> Personality Predicting Received Teammate- Nominations as Role Occupants (Including Non-Significant Results).....	185
<b>Supplemental Material (Project Two) 7.</b> Relationship between Athlete Satisfaction with Team Integration and Percentage of Outgoing Verbal Leader Nominations.....	189
<b>Supplemental Material (Project Two) 7.</b> Descriptive Statistics for Outgoing Nominations for Informal Roles .....	190

## LIST OF SUPPLEMENTAL MATERIALS (PROJECT THREE)

<b>Supplemental Material (Project Three) 1. Comedian Role Occupancy Summary .....</b>	<b>192</b>
<b>Supplemental Material (Project Three) 2. Spark Plug Role Occupancy Summary .....</b>	<b>193</b>
<b>Supplemental Material (Project Three) 3. Enforcer Role Occupancy Summary .....</b>	<b>194</b>
<b>Supplemental Material (Project Three) 4. Mentor Role Occupancy Summary .....</b>	<b>195</b>
<b>Supplemental Material (Project Three) 5. Non-verbal Informal Leader Role Occupancy Summary .....</b>	<b>196</b>
<b>Supplemental Material (Project Three) 6. Verbal Informal Leader Role Occupancy Summary .....</b>	<b>197</b>
<b>Supplemental Material (Project Three) 7. Team Player Role Occupancy Summary .....</b>	<b>198</b>
<b>Supplemental Material (Project Three) 8. Star Player Role Occupancy Summary .....</b>	<b>199</b>
<b>Supplemental Material (Project Three) 9. Social Convener Role Occupancy Summary .....</b>	<b>200</b>
<b>Supplemental Material (Project Three) 10. Cancer Role Occupancy Summary .....</b>	<b>201</b>
<b>Supplemental Material (Project Three) 11. Distracter Role Occupancy Summary .....</b>	<b>202</b>
<b>Supplemental Material (Project Three) 12. Malingerer Role Occupancy Summary .....</b>	<b>203</b>
<b>Supplemental Material (Project Three) 13. Role Profile Example .....</b>	<b>204</b>

## GENERAL INTRODUCTION

Groups are an essential aspect of human experience (Baumeister & Leary, 1995). That is, humans have basic needs to form and maintain social bonds, and naturally and easily form groups with others (Baumeister & Leary, 1995). Even in the most artificially and/or randomly created groups, people quickly develop a sense of group identity and favour in-group members over out-group members (Baumeister & Leary, 1995). Despite the universality and robustness of groups, the efficient operation of groups can also pose a significant challenge due to the competing needs and goals of individual members (e.g., Karau & Williams, 1993). On the one hand, when in-group members collate their efforts and work together toward common goals, the group has a better chance of being maintained and of maximizing its success (Burke, Davies, & Carron, 2014). On the other hand, the complex interaction of competing individual needs and motives may lead to conflicts among group members, undermining individual and group functioning (Jehn, 1995). In short, groups are an essential and a very complex aspect of human lives.

Recognizing the importance and complexity of effective group operations, sport group dynamics researchers have examined a variety of group-related concepts and variables to better understand how to maximize group functioning and productivity (Beauchamp & Eys, 2014). Carron and Spink (1993) proposed a theoretical framework of group development, which included inputs, throughputs, and outputs. Inputs include two specific categories: *group environment* (e.g., distinctiveness) and *group structure* (e.g., positions and roles of group members, norms within groups). These inputs directly influence the throughput of *group processes* (e.g., member interactions and communications). For instance, a group that has unique properties that distinguish its in-group members from out-group members (e.g., group name,

traditions, common goals), and that has established positive group norms and clearly differentiated roles for its members, is more likely to experience productive and smooth member interactions and communication. In turn, this interaction of group inputs and throughputs can lead to the output of *group cohesion*, which represents the degree to which the group members remain united during their pursuit of achieving task-related goals as well as their tendency to promote social bonding within their group (Carron, Widmeyer, & Brawley, 1985).

Within Carron and Spink's (1993) framework, *roles* within groups, which represent an important component of a group's structure, have received considerable empirical attention (Eys, Schinke, Surya, & Benson, 2014). A role is defined as "the set of prescriptions defining what the behaviour of a position member should be" (Biddle & Thomas, 1966, p. 29). Role research in sport emanated from the pioneering work in the field of organizational psychology by Kahn, Wolfe, Quinn, Snoek, and Rosenthal (1964). Specifically, Kahn and colleagues introduced the *Role Episode Model* (Figure 1), which describes a series of five events that occur within a group when a role is transmitted. First, a *role sender* (i.e., coach) develops role expectations of a *focal person* (i.e., athlete). Second, these role expectations, along with concurrent demands to fulfill such expectations, are communicated to the focal person. Third, the focal person perceives the role expectations and demands from the role sender. Fourth, the focal person responds to the role expectations by either executing or failing to execute their role responsibilities. Fifth, the role sender assesses the focal person's performance of role expectations and whether such expectations were appropriate to the focal person's capabilities. The role episode is an iterative process whereby the role sender subsequently maintains or adjusts the role expectations, which are then communicated to the focal person again (Kahn et al., 1964).

Using the Role Episode Model (Kahn et al., 1964) as the conceptual foundation, several sport psychology researchers (Beauchamp, Bray, Eys, & Carron, 2005; Benson, Eys, Surya, Dawson, & Schneider, 2013; Eys & Carron, 2001; Eys, Carron, Beauchamp, & Bray, 2005a; Eys, Carron, Bray, & Beauchamp, 2003, 2005b; Surya, Eys, & Benson, 2012) examined various role-related elements in interdependent sport teams (e.g., role ambiguity, role satisfaction, role acceptance). Focusing on the concept of role ambiguity (i.e., a situation where an athlete does not clearly understand his/her roles), Eys and colleagues (Eys et al., 2005a; Eys et al., 2003, 2005b) conducted a series of studies to explore its antecedents and outcomes. Their results demonstrated that role ambiguity may occur for a variety of reasons such as the absence of or unclear communication from the coach, complexity of the roles, and athletes' lack of ability or knowledge, among others (Eys et al., 2005a). Further, role ambiguity was found to be negatively associated with numerous important individual and group outcomes such as intentions to return to sport (Eys et al., 2005b), athlete satisfaction (Eys et al., 2003), and both group task cohesion and individual task self-efficacy (Eys & Carron, 2001). These results highlight the practical importance of reducing role ambiguity experienced by athletes, and suggest that coaches should help their athletes have a clear understanding of their roles by assigning roles that are appropriate to the athletes' skill level and by communicating their role expectations clearly.

Role satisfaction (i.e., the degree to which an athlete is fulfilled with his/her role responsibilities) is another role-related element that received some empirical attention (Beauchamp et al., 2005; Surya et al., 2012). Borrowing from the concept of job satisfaction within the organizational psychology literature, Beauchamp et al. (2005) investigated the relationship between role ambiguity and role satisfaction within sport teams. Their results showed that role ambiguity experienced mid-season predicted higher levels of role

dissatisfaction experienced one month later, highlighting the importance of ensuring athletes' understanding of their role responsibilities early in the season. More recently, Surya et al. (2012) explored the dimensionality of role satisfaction with intercollegiate team sport athletes, and provided evidence for a 6-dimension conceptualization, which included satisfaction with the (a) congruence between the role and athletes' skills, (b) significance of the role to the team, (c) personal significance of the role to the athletes, (d) feedback regarding role performance, (e) autonomy in performing role expectations, and (f) recognition of their role responsibilities by the team. In addition to providing a psychometrically sound instrument that can be used to measure role satisfaction in sport, the work by Surya et al. suggested that role satisfaction is manifested by multiple dimensions, which may need to be taken into consideration when promoting athletes' role satisfaction.

Another type of role element that is related to, but conceptually distinct from, role satisfaction, is role acceptance. Benson et al. (2013) explored intercollegiate interdependent sport athletes' perceptions regarding role acceptance, pertaining to its definition, antecedents, and consequences. Based on individual interviews from 15 athletes and 4 additional verification interviews, Benson et al. proposed that role acceptance could be defined as "a dynamic process that reflects the degree to which an athlete is willing to fulfill the role responsibilities expected of him/her" (p. 273). As for its antecedents, the participants discussed that they were more likely to accept their assigned roles when the roles had some degree of importance in the context of the team and were acknowledged by their coaches and teammates, as well as when they received positive feedback regarding their role performance. Of note, it was also mentioned that although the degree to which they were satisfied with their roles positively influenced the likelihood of accepting such roles, several athletes also discussed that they were often willing to accept

personally undesirable role responsibilities to satisfy the team's needs, highlighting the conceptual distinction between role acceptance and role satisfaction.

As for consequences of not accepting ones' roles, athletes pointed out that team members who did not accept their roles often caused interpersonal conflicts, damaged team climate and performance, and dropped out of the team. Overall, Benson et al.'s (2013) findings imply that coaches can help their athletes accept their role responsibilities by acknowledging their efforts and providing positive feedback, which can prevent the associated negative consequences and thus improve the team functioning. In sum, numerous empirical studies that examined various role elements (e.g., role ambiguity, satisfaction, acceptance) within sport teams have added to the current sport group dynamics literature, and indicate that the degree to which athletes clearly understand, are satisfied with, and accept their roles have important ramifications for both individual (e.g., retention) and group outcomes (e.g., cohesion).

Despite the considerable amount of empirical attention given to role involvement in sport in the last two decades, one limitation in this area of study is that most research studies have focused on *formal* roles, which are explicit and typically prescribed by an authority figure (i.e., coach), as described by Kahn et al.'s (1964) Role Episode Model. In addition to the formal roles, *informal* roles, roles that are not explicitly prescribed, may also naturally emerge within groups (Eys et al., 2014; Hare, 1994). Within organizational psychology, informal roles were purported to arise to either *supplement* or *resist* the formal structure of the group, which can have beneficial or detrimental influences depending on the nature of the existing group structure (Hare, 1994). In the case of effective group structures, supplemental informal roles can be beneficial by augmenting the existing structures, whereas resistant roles may disrupt the effective group structures. On the contrary, if the existing structures are ineffective, supplemental informal roles

can be detrimental by further adding to them, whereas resistant roles could potentially correct the erroneous structures and thus be beneficial (Hare, 1994). As examples, Farrell, Schmitt, and Heinemann (2001) listed a number of informal roles that may emerge during group development, including the “clown” who relieves tension by using humour, the “party host” who arranges social gatherings to promote positive group environments, and the “scapegoat” (p. 284) who is perceived as incompetent and blamed for the group’s failures.

Recent literature has suggested that informal roles also exist on sport teams and that they may have significant influence on important individual and group outcomes (Eys et al., 2014). Cope and colleagues (Cope, Eys, Beauchamp, Schinke, & Bosselut, 2011; Cope, Eys, Schinke, & Bosselut, 2010) provided some initial insight in this area. Specifically, Cope et al. (2011) conducted a two-phase study on informal roles in sport. In the first phase, they conducted a qualitative analysis of *Sports Illustrated* magazines ( $N = 448$ ) in order to identify and describe various informal roles in team sports, as well as to examine the various contexts in which the informal roles were discussed. In the second phase, 101 athletes playing intercollegiate team sports were asked to verify the list of informal roles generated from phase one and rate the relative influence of each role on the team functioning. As a result, a total of nine positive (comedian, spark plug, enforcer, mentor, non-verbal informal leader, verbal informal leader, team player, star player, social convener) and three negative (cancer, distracter, malingerer) informal roles were identified (see Table 1 for full descriptions). In addition, the findings indicated that informal roles were described in relation to several individual (e.g., personality, satisfaction) and team (e.g., task and social cohesion) concepts.

Focusing on the specific informal role of team cancers, defined as those who “express negative emotions that spread destructively throughout a team” (p. 24), Cope et al. (2010)



explored coaches' perspectives on the characteristics and consequences of team cancers, as well as how they managed team cancers. Semi-structured individual interviews were conducted with 10 Canadian intercollegiate coaches. Among their results, the coaches described that team cancers were narcissistic, manipulative, and distracting, and perceived that athletes often came to occupy the cancer role because of their emotional immaturity, lack of confidence, and performance pressures from others. As for their consequences, coaches emphasized that the presence of team cancers often divided the team into several cliques and had detrimental effects on team cohesion and performance. Coaches tried to mitigate such effects and manage the team cancers by directly communicating with those identified in this role, indirectly addressing the issue with the whole team, and using disciplinary measures (e.g., reducing playing time) (Cope et al., 2010). In sum, the aforementioned studies by Cope and colleagues (2010, 2011) demonstrate the relevance of informal roles in sport team contexts.

Thus, it is both theoretically and practically worthwhile to consider the processes by which athletes come to occupy informal roles (Eys et al., 2014). In the case of formal roles, the Role Episode Model (Kahn et al., 1964) posits that formal role transmission starts from the coach, who communicates his/her role expectations to the athletes. However, it is believed that informal role transmission may involve different and/or additional processes. For instance, Cope et al.'s (2010) examination of the nature of the team cancer role indicated that the occupancy of this negative role was initiated by the athletes, not the coach. In fact, those concerned with group processes in the organizational psychology discipline described that informal roles are expected to develop naturally based on social interactions among group members, rather than explicit assignment from the organization (e.g., Hare, 1994). Thus, while the Role Episode Model (Kahn et al., 1964) provides a useful starting point in examining the processes by which informal roles

develop on sport teams, it is also logical to believe that such processes will differ from those that involve formal roles.

A potentially important antecedent of informal role development is athletes' personality characteristics. There are several conceptual bases for expecting personality to play an important part of the processes by which informal roles develop. First, in the Role Episode Model described by Kahn et al. (1964), members' personal characteristics were discussed as an important factor that can influence the way by which a member adopts a formal role within his/her team. Second, in a comprehensive review of personality research in sport psychology, Allen, Greenlees, and Jones (2013) asserted that "...different positions often require different behaviours that may be more or less suited to persons with particular personality characteristics." (p. 190). Third, the aforementioned qualitative work focusing on team cancers (Cope et al., 2010) highlighted that athletes' negative personality characteristics (e.g., emotional immaturity) were one of the factors that led to their counterproductive behaviours within their teams. Taken together, it may be worthwhile to examine athletes' personality in relation to the types of informal roles that they come to occupy in their teams.

In addition to the occupancy or development of informal roles, there is also a lack of research that examines specific outcomes of various informal roles. Although Cope et al. (2011) reported athletes' ratings of the effects of each informal role on sport teams, these data only pertained to the overall functioning of the group, rather than specific measures of individual and group outcome variables. Although Cope et al. (2010) provided useful insight regarding various consequences of team cancers on sport teams, it focused on only one informal role and relied exclusively on a qualitative interview method. Thus, it may be useful to understand how the extent to which various informal roles exist on sport teams relate to important individual and

group outcomes such as athlete satisfaction (Riemer & Chelladurai, 1998), intentions to return (Spink, 1995), and group task and social cohesion (Carron et al., 1985), all of which constitute important aspects of athletes' sporting experiences and group functioning.

Thus, the overall purpose of the current doctoral dissertation was to examine how various informal roles develop on sport teams, as well as their influences on specific outcomes pertaining to individual and group functioning. In addition to the antecedents and outcomes, the dissertation also aimed to provide information pertaining to informal role structures in sport teams. Three separate projects using multiple methods were conducted to examine the various antecedents and outcomes of informal roles. Project One tested the association between athlete personality and informal role occupancy in a cross-sectional design. Project Two extended Project One by re-testing the links between personality and informal role occupancy over multiple time points, and also examined the impact of the presence of informal roles. Project Three was an instrumental case study that utilized several methods (questionnaires, video-recordings, interviews) to examine informal role emergence in depth. Overall, the three projects aimed to add to the current group dynamics literature by providing insight to the understudied area of informal role dynamics.

## References

- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497-529. doi:10.1037/0033-2909.117.3.497
- Beauchamp, M. R., Bray, S. R., Eys, M. A., & Carron, A. V. (2005). Multidimensional role ambiguity and role satisfaction: A prospective examination using interdependent sport teams. *Journal of Applied Social Psychology*, 35, 2560-2576. doi:10.1111/j.1559-1816.2005.tb02114.x
- Beauchamp, M. R., & Eys, M. A. (2014). *Group dynamics in exercise and sport psychology* (2<sup>nd</sup> ed.). New York, NY: Routledge.
- Benson, A. J., Eys, M., Surya, M., Dawson, K., & Schneider, M. (2013). Athletes' perceptions of role acceptance in interdependent sport teams. *The Sport Psychologist*, 27, 269-280. doi:10.1123/tsp.27.3.269
- Biddle, B. J., & Thomas, E. J. (1966). *Role theory: Concepts and research*. New York, NY: Wiley
- Burke, S. M., Davies, K. M., & Carron, A. V. (2014). Group cohesion in sport and exercise settings. In M. R. Beauchamp & M. A. Eys (Eds.), *Group dynamics in exercise and sport psychology* (2<sup>nd</sup> ed., pp. 147-163). New York, NY: Routledge
- Carron, A. V., & Spink, K. S. (1993). Team building in an exercise setting. *The Sport Psychologist*, 7, 8-18. doi:10.1123/tsp.7.1.8
- Carron, A. V., Widmeyer, W. N., & Brawley, L. R. (1985). The development of an instrument to assess cohesion in sport teams: The Group Environment Questionnaire. *Journal of Sport and Exercise Psychology*, 7, 244-266. doi:10.1123/jsp.7.3.244

- Cope, C. J., Eys, M. A., Beauchamp, M. R., Schinke, R. J., & Bosselut, G. (2011). Informal roles in sport teams. *International Journal of Sport and Exercise Psychology*, 9, 19-30.  
doi:10.1080/1612197X.2011.563124
- Cope, C. J., Eys, M. A., Schinke, R. J., & Bosselut, G. (2010). Coaches' perspectives of a negative informal role: The 'cancer' within sport teams. *Journal of Applied Sport Psychology*, 22, 420-436. doi:10.1080/10413200.2010.495327
- Eys, M. A., & Carron, A. V. (2001). Role ambiguity, task cohesion, and task self-efficacy. *Small Group Research*, 32, 356-373.
- Eys, M. A., Carron, A. V., Beauchamp, M. R., & Bray, S. R. (2005a). Athletes' perceptions of the sources of role ambiguity. *Small Group Research*, 36, 383-403.  
doi:10.1177/1046496404268533
- Eys, M. A., Carron, A. V., Bray, S. R., & Beauchamp, M. R. (2003). Role ambiguity and athlete satisfaction. *Journal of Sports Sciences*, 21, 391-401.  
doi:10.1080/0264041031000071137
- Eys, M. A., Carron, A. V., Bray, S. R., & Beauchamp, M. R. (2005b). The relationship between role ambiguity and intention to return the following season. *Journal of Applied Sport Psychology*, 17, 255-261. doi:10.1080/10413200591010148
- Eys, M. A., Schinke, R. J., Surya, M., & Benson, A. J. (2014). Role perceptions in sport groups. In M. R. Beauchamp & M. E. Eys (Eds.), *Group dynamics in exercise and sport psychology* (2<sup>nd</sup> ed., pp. 131-146). New York: Routledge.
- Farrell, M. P., Schmitt, M. H., & Heinemann, G. D. (2001). Informal roles and the stages of interdisciplinary team development. *Journal of Interprofessional Care*, 15, 281-295.  
doi:10.1080/13561820120068980

Hare, P. A. (1994). Types of roles in small groups: A bit of history and a current perspective.

*Small Group Research*, 25, 433-448. doi:10.1177/1046496494253005

Jehn, K. A. (1995). A multimethod examination of the benefits and detriments of intragroup

conflict. *Administrative Science Quarterly*, 40, 256-282. doi:10.2307/2393638

Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A. (1964).

*Organizational stress: Studies in role conflict and ambiguity*. New York: Wiley.

Karau, S. J., & Williams, K. D. (1993). Social loafing: A meta-analytic review and theoretical

integration. *Interpersonal Relations and Group Processes*, 65, 681-706.

doi:10.1037/0022-3514.65.4.681

McCrae, R. R., & Costa, P. T. (2010). *NEO inventories: Professional manual*. Lutz, FL:

Psychological Assessment Resources.

Riemer, H. A., & Chelladurai, P. (1998). Development of the Athlete Satisfaction Questionnaire

(ASQ). *Journal of Sport and Exercise Psychology*, 20, 127-156.

doi:10.1123/jsep.20.2.127

Spink, K. S. (1995). Cohesion and intention to participate of female sport team athletes. *Journal*

*of Sport and Exercise Psychology*, 17, 416-427. doi:10.1123/jsep.17.4.416

Surya, M., Eys, M. A., & Benson, A. J. (2012). Development of a role satisfaction questionnaire.

*Journal of Sport and Exercise Psychology*, 34, S290. doi:10.1123/jsep.34.s1.s195

## **PROJECT ONE: ATHLETE PERSONALITY CHARACTERISTICS AND INFORMAL ROLE OCCUPANCY IN INTERDEPENDENT SPORT TEAMS<sup>1</sup>**

A role is defined as “the set of prescriptions defining what the behaviour of a position member should be” (Biddle & Thomas, 1966, p. 29) and constitutes an important structural element of performance groups, including competitive sport teams (Eys, Schinke, Surya, & Benson, 2014). That is, clearly defined roles within a team can effectively divide labour among individual members, which can subsequently help maximize productivity as a unit (Carron & Eys, 2012). A substantial amount of research on athletes’ perceptions regarding their roles demonstrated that the degree to which they understand (e.g., Eys, Carron, Bray, & Beauchamp, 2003) and accept their roles (e.g., Benson, Eys, Surya, Dawson, & Schneider, 2013) has meaningful ramifications for both individual (e.g., retention) and team outcomes (e.g., cohesion and performance; see Eys et al., 2014, for an overview of research on role perceptions in sport).

Despite accumulating evidence pertaining to the importance of roles within sport teams, a gap within the current literature is that researchers have predominantly focused on *formal* role involvement (i.e., based on role responsibilities explicitly communicated to team members by individuals in positions of authority; Eys et al., 2014). However, scholars (e.g., Benson, Surya, & Eys, 2016; Hare, 1994) have also highlighted the importance of *informal* role structures, which are projected to emerge in response to the group’s formal structure. On one hand, informal roles can facilitate group functioning by *supplementing* what the formal group structure might otherwise lack. On the other hand, informal roles may *resist* the formal group structure, which may be detrimental (i.e., resisting effective intra-group processes) or beneficial (i.e., resisting erroneous intra-group processes) (Hare, 1994). Based on a content analysis of *Sports Illustrated*

---

<sup>1</sup> A version of this paper is published in the *Psychology of Sport and Exercise* journal (vol. 39). No copyright permission is required from this journal for inclusion within a dissertation.

magazines ( $N = 448$ ) and follow-up validation surveys with team sport athletes ( $N = 101$ ), Cope, Eys, Beauchamp, Schinke, and Bosselut (2011) identified 12 informal roles that exist in sport teams (see Table 1), though the authors were clear that this likely did not represent an exclusive list. An example of a supplementary role in sport teams is a *social convener* who may emerge in highly task-oriented team environments to facilitate the building of interpersonal bonds by organizing gatherings that the team may otherwise lack (Cope et al., 2011). As an example of a detrimental resistant role, a team *cancer/bad apple* (Cope et al., 2011; Cope, Eys, Schinke, & Bosselut, 2010) may emerge and spread negative attitudes throughout the team. The athletes who participated in the validation surveys in Cope et al. (2011) further rated the identified informal roles as having positive/negative influences on sport team functioning, highlighting their potential importance.

Given the potential impact that informal roles can have on sport teams, in conjunction with the relative infancy of this area of research, further insights are warranted to understand how athletes come to occupy various informal roles on their teams. One potential antecedent of this process is athlete personality characteristics (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964; Mann, 1959). Personality research in sport psychology has been scarce in the last few decades, which Beauchamp, Jackson, and Lavalley (2014) attributed to the inconclusive findings in the 1960s and 1970s regarding the relationship between athlete personality and athletic success. However, a resurgent body of literature in this area has provided evidence that personality may have meaningful associations with various individual outcomes. For instance, athletes' personality was found to be linked with the type of coping behaviours endorsed (Allen, Greenlees & Jones, 2011; Kaiseler, Levy, Nicholls, & Madigan, 2017), quality of coach-athlete relationships (Jackson, Dimmock, Gucciardi, & Grove, 2010), and performance (Piedmont, Hill,



& Blanco, 1999; Steca, Baretta, Greco, D'Addario, & Monzani, 2018). The vast majority of this literature was based on the five-factor model (FFM), which is arguably the most accepted conceptualization of adult personality (McCrae & Costa, 2010). The FFM contains five global dimensions of personality: neuroticism (i.e., emotional instability), extraversion (i.e., tendency to be outgoing, sociable), openness to experience (i.e., preference for novel ideas and thoughts, artistic values), agreeableness (i.e., tendency to help and cooperate with others), and conscientiousness (i.e., tendency to be organized, reliable, and strong-willed).

In addition to individual outcomes, athlete personality may also have meaningful ramifications for group-oriented processes and outcomes (Kahn et al., 1964; Mann, 1959). Although research examining personality in relation to sport team dynamics is rare, there is now good evidence in the organizational psychology literature that member personality composition of small groups contributes to group success in other performance settings (e.g., industry). Researchers in this area have used different aggregation methods to examine how the means and variability of member personalities influence group functioning. Several meta-analyses revealed that group mean agreeableness and conscientiousness (Bell, 2007; Peeters, van Tuijl, Rutte, & Reymen, 2006; Prewett, Walvoord, Stilson, Rossi, & Brannick, 2009), as well as mean extraversion and emotional stability (Bell, 2007; Prewett et al., 2009), were positively associated with group performance. These findings indicate that groups whose members are generally more agreeable, conscientious, extraverted, and/or emotionally stable are likely to perform better than groups whose members represent lower scores on these dimensions. Peeters et al. (2006) also found that within-group variability of agreeableness and conscientiousness related negatively to group performance, and Prewett, Brown, Goswami, and Christiansen (2016) demonstrated a positive link between within-group variability in extraversion and group performance. These

findings indicate that having group members with similar levels of agreeableness and conscientiousness, but dissimilar levels of extraversion, is beneficial for the group.

Personality of leaders may also be an important consideration for group success. A meta-analysis by Judge, Bono, Ilies, and Gerhardt (2002) that explored correlations between the big five dimensions and leadership (represented by emergence and effectiveness of leaders) revealed that leaders tended to be more extraverted, conscientious, open to experience, and emotionally stable. Bono and Judge's (2004) meta-analysis revealed that extraversion (positive) and neuroticism (negative) were meaningful correlates of transformational leadership (i.e., leadership approach by which the leader transcends the followers' interests to promote acceptance of group goals and maximize group productivity; Bass, 1990). These findings imply that the big five dimensions can provide a meaningful framework for understanding leader personality characteristics in groups.

As mentioned previously, personality research in sport team dynamics is scarce. However, there are conceptual propositions that allow one to expect athlete personality to play an important role in sport teams. For instance, Allen, Greenlees, and Jones (2013) asserted that certain personality styles may be more or less suitable for certain role responsibilities. In fact, in Kahn et al.'s (1964) original conceptualization of role transmission processes, which has been adapted to sport settings to understand role dynamics in sport teams (Eys, Carron, Beauchamp, & Bray, 2005), personality was discussed as one of the factors that can influence how a group member endorses a role in his/her group. As it pertains to the current study, emerging evidence also proposes personality as an important antecedent of informal role occupancy. For instance, Carreau, Bosselut, Ritchie, Heuzé, and Arppe (2016) qualitatively examined a group undertaking a 13-day canoe expedition and proposed that the interaction of individual members' personality

and other contextual factors (e.g., member relationships) influenced the emergence and evolution of informal roles. Within sport settings, Cope et al. (2010) examined the nature of team *cancers/bad apples* based on qualitative interviews with intercollegiate coaches. Among their findings, athletes' negative personality characteristics were discussed as one of the factors that led to the athletes' engagement in disruptive behaviours within the team (e.g., lack of emotional maturity as a basis for shifting blame toward teammates). Thus, examining personality characteristics of athletes appears to be a logical first step to understand the processes by which athletes come to occupy various informal roles on their teams.

In sum, the previous literature on informal role emergence in sport teams, combined with recent scholars' emphasis on the potential importance of member personality in relation to group effectiveness, allows one to posit that athletes' personality characteristics may serve as an important antecedent to the various informal roles they occupy on their teams. Although specific hypotheses are not generated in the current paper given its exploratory nature and the early stage of research in this area, general expectations can be deduced based on the empirical findings from other research areas. Based on the personality composition literature, it may be expected that athlete agreeableness, conscientiousness, extraversion (positively), and neuroticism (negatively) are related to occupancy of positive roles (comedian, spark plug, enforcer, mentor, nonverbal and verbal informal leader, team player, star player). These relationships may be reversed for negative roles (cancer, distracter, malingerer), such that occupancy of negative roles is negatively associated with agreeableness, conscientiousness, and extraversion, and positively associated with neuroticism. Also, based on findings in the leadership literature, it may be possible that extraversion (positively) and neuroticism (negatively) are associated with

occupancy of leadership-oriented informal roles (e.g., mentor, non-verbal and verbal informal leader).

To investigate the relationship between athlete personality characteristics and informal role occupancy within their teams, two separate studies were conducted. Study 1 examined how French athletes' personality characteristics relate to their self-identified informal role occupancy. Study 2 extended the findings of Study 1 by examining the relationship between Canadian athletes' personality characteristics and their informal role occupancy based on their self-identification, as well as their teammates' nominations. The subsequent sections will report the findings of the two studies separately, and will be followed by a general discussion section.

## Study 1

### Method

**Participants.** Data were collected from 340 French athletes from 34 teams participating in interdependent sports (e.g., basketball, volleyball, rugby, handball) ranging from regional to international competitive levels in France. Descriptive data regarding the demographic information of the participants (Appendix A) and their personality scores are summarized in Supplemental Material 1.

**Measures.** To assess informal role occupancy, the participants were provided with the list and descriptions of 12 informal roles, and were asked to indicate up to three roles that they believed they occupied on their teams (Appendix B).

To gather data on participant personality characteristics, the French version of the Big Five Inventory (BFI-Fr; Plaisant, Courtois, Réveillère, Mendelsohn, & John, 2010; Appendix C) was used in a pen-and-paper format. The BFI-Fr is a 45-item scale with each item scored on a 5-point Likert scale from 1 ("Strongly disagree") to 5 ("Strongly agree"). The Cronbach's alpha

(Cronbach, 1951) values were: .75 (neuroticism; 8 items), .81 (extraversion; 8 items), .66 (openness; 10 items), .73 (agreeableness; 10 items), and .75 (conscientiousness; 9 items). The mean of each dimension was used for analysis.

**Data analysis.** To compare the scores on the big five personality dimensions between those who self-identified as a role occupant vs. those who did not, one-way MANOVA were conducted with the mean scores of the big five dimensions as the five dependent variables and the dichotomous (yes/no) role occupancy variable as the independent variable. As a result, a total of 12 one-way MANOVA were conducted (i.e., one MANOVA for each role). To address the probability of committing a type I error that may be inflated due to the large number of statistical tests,  $p$  values that were less than 0.01 were deemed statistically significant.

## Results

**Informal role occupancy.** In general, each team had several athletes who self-identified as the occupants of various informal roles. The average number of role occupants per team ranged from .65 (star players) to 6.12 (spark plugs) for positive roles, and from .29 (cancers) to .85 (distracters) for negative roles. See Table 2 for details.

**Personality and informal role occupancy.** Descriptive statistics regarding the personality scores are provided in Supplemental Material 1. Analyses comparing the scores on the big five personality dimensions between self-identified role occupants and non-role occupants revealed statistically significant results for four informal roles (see Table 3)<sup>2,3</sup>.

---

<sup>2</sup> Only statistically significant findings are reported. Detailed results of the MANOVA including the statistically non-significant findings can be found in Supplemental Material 2.

<sup>3</sup> The assumption of independent cases was considered met given that there was no logical reason to expect athletes' self-identification as role occupants to be interdependent. The number of cases in each group was larger than the number of dependent variables (i.e., more than 5 cases). The assumption of the absence of multicollinearity was met given that all bivariate correlations among the big five personality variables were .26 or below in magnitude. Inspection of descriptive statistics (e.g., skewness, kurtosis), Quantile-Quantile plots, and Shapiro-Wilk's tests

**Comedians.** The multivariate analysis revealed a statistically significant result,  $F(5, 334) = 9.16, p < 0.001$ ; Wilk's  $\Lambda = 0.88$ , partial  $\eta^2 = 0.12$ . Follow-up univariate comparisons revealed that those athletes who self-identified as the team comedians ( $n = 116$ ) were more extraverted,  $F(1, 338) = 36.74, p < .001$ ; partial  $\eta^2 = .10$ , than those who did not ( $n = 224$ ).

**Non-verbal informal leaders.** The multivariate analysis revealed a statistically significant result,  $F(5, 334) = 4.85, p < .001$ ; Wilk's  $\Lambda = .93$ , partial  $\eta^2 = .07$ . Follow-up univariate comparisons revealed that those who self-identified as the team non-verbal informal leaders ( $n = 64$ ) were less extraverted,  $F(1, 338) = 14.68, p < .001$ ; partial  $\eta^2 = .04$ , and more agreeable,  $F(1, 338) = 10.00, p = .002$ ; partial  $\eta^2 = .03$ , than those who did not ( $n = 276$ ).

**Verbal informal leaders.** The multivariate analysis revealed a statistically significant result,  $F(5, 334) = 3.71, p = .003$ ; Wilk's  $\Lambda = .95$ , partial  $\eta^2 = .05$ . Follow-up univariate comparisons revealed that those who self-identified as the team verbal informal leaders ( $n = 39$ ) were more conscientious,  $F(1, 338) = 10.46, p = .001$ ; partial  $\eta^2 = .03$ , than those who did not ( $n = 301$ ).

**Distracters.** The multivariate analysis revealed a statistically significant result,  $F(5, 334) = 3.35, p = .006$ ; Wilk's  $\Lambda = .95$ , partial  $\eta^2 = .05$ . Follow-up univariate comparisons revealed that those who self-identified as team distracters ( $n = 29$ ) were less conscientious,  $F(1, 338) = 10.60, p = .001$ ; partial  $\eta^2 = .03$ , than those who did not ( $n = 311$ ).

---

revealed that the assumption of multivariate normality was not met in some cases. However, these violations were not considered serious because MANOVA is relatively robust against violating this assumption and because most groups included 20 or more cases (Field, 2018). The assumption of homogeneity of variance for each comparison was assessed using Levene's test. Though this assumption was met for most comparisons, a few comparisons indicated statistically significant Levene's tests at  $p < .05$ , indicating violations of this assumption. In such cases,  $p$  values for the mean comparisons based on equal variances assumed vs. not assumed were compared, which revealed that the significance testing results were mostly consistent between the two conditions. Box's test was statistically significant at  $p < .001$  for the cancer role comparison only, indicating a violation of homogeneity of covariances (Field, 2018). Thus, interpretations for this specific comparison should be made with caution. Overall, the comparisons that involve distinctively unbalanced groups (e.g., 10 vs. 330 for cancer, 16 vs. 324 for malingerer) should be interpreted with caution.

No statistically significant differences were found for spark plug, enforcer, mentor, team player, star player, social convener, cancer, and malingerer roles.

### **Summary of Findings (Study 1)**

MANOVA comparing the big five personality dimensions between role occupants and non-role occupants revealed that self-identified team comedians were more extraverted, non-verbal leaders were less extraverted and more agreeable, verbal leaders were more conscientious, and distracters were less conscientious. Associations between the personality dimensions and occupancy of other roles (spark plug, enforcer, mentor, team player, star player, social convener, cancer, malingerer) were statistically non-significant.

Despite the findings of Study 1 that partially supported the theoretical notions that personality characteristics of athletes may be related to the informal roles they occupy on their teams, there are some limitations that must be considered. First, the participants were limited to reporting up to three roles. This may have prevented some athletes from reporting all informal roles they believed they occupied (in cases of more than three roles). Second, more importantly, informal role occupancy was self-reported. It is possible that role occupancy assessed based on self-nominations is prone to various sources of bias such as social desirability or self-enhancement (e.g., John & Robins, 1994). Thus, examining informal role occupancy based on other team members' identification may provide a more robust representation of the informal role occupants' influence on others. Associations between athlete personality and informal role occupancy as identified by others (i.e., rather than self-identification) will also provide stronger empirical support for the theoretical propositions between personality and informal role occupancy. As such, the purpose of Study 2 was to examine the relationship between athletes' self-reported personality and their informal role occupancy as identified by teammates.

## Study 2<sup>4</sup>

### Method

**Participants.** Data were collected from 195 athletes from 14 intercollegiate sport teams participating in various competitive interdependent sports (e.g., basketball, volleyball, rugby, ice hockey) in Canada. Descriptive data regarding the demographic information of this sample (Appendix F) are summarized in Supplemental Material 1.

**Measures.** The participants were provided with the list and descriptions of 12 informal roles (see Table 1) and asked to (a) nominate the teammate(s) who occupied each role and (b) identify whether they occupied the role themselves (i.e., a dichotomous “yes/no” question) (Appendix G).

To gather data on participant personality characteristics, the participants were asked to fill out the pen-and-paper version of NEO Five-Factor Inventory (NEO-FFI-3; McCrae & Costa, 2010)<sup>5</sup>. The NEO-FFI-3 is a 60-item scale with each item scored on a 5-point Likert scale from 0 (“Strongly disagree”) to 4 (“Strongly agree”), with 12 items for each personality dimension. Cronbach’s alpha (Cronbach, 1951) values were: .78 (neuroticism), .83 (extraversion), .66 (openness), .76 (agreeableness), and .83 (conscientiousness). The sum of each personality dimension was used for analysis.

**Data analysis.** To descriptively examine the degree to which informal roles were identified, the athletes who self-nominated as an occupant of a given role were counted and categorized as *self-identified* role occupants. Further, the number of athletes who received the majority (i.e., 50%) of their teammates’ nominations were categorized as a *teammate-identified*

---

<sup>4</sup> Research Ethics Board approval (Appendix D) and the Letter of Informed Consent (Appendix E) can be found in the Appendices section.

<sup>5</sup> Due to copyright, the NEO-FFI-3 is not provided within the appendix.



role occupant (cf. Shaw, 1981)<sup>6</sup>, and were counted for each role. In addition, the congruence between self- and teammate-identification of role occupancy was examined by computing the number of cases where athletes' self-identification were in agreement vs. disagreement with the majority of their teammates' nominations.

A total of 10<sup>7</sup> MANOVA were conducted to examine the differences in the scores on the big five personality dimensions between self-identified role occupants and non-role occupants for each role. To assess the relationship between athletes' personality and their role occupancy based on teammate-nominations, the percentage of teammate nominations that each athlete received for each role was computed by dividing the number of nominations that each athlete received by the number of teammates who participated in the study (i.e., total number of possible teammate-nominations). Then, the percentage of teammate-nominations each athlete received for each role was regressed onto their scores on the big five dimensions, which were entered into the model in a stepwise fashion. As such, a total of 12 multiple linear regressions were conducted. As in the case of study 1, all statistical tests were deemed significant based on a conservative alpha level ( $p < 0.01$ ).

## Results

**Self-identified role occupancy.** The number of self-identified role occupants per team ranged from 3.07 (star players; social convener) to 9.14 (team players) for positive roles, and from 0 (malingerers) to 0.86 (distracters) for negative roles. See Table 2 for details.

---

<sup>6</sup> Though it is recognized that the 50% criterion is arbitrary, this criterion was used to determine majority agreement within each team regarding informal role occupants based on Shaw (1981) who suggested that 50% should be the minimum standard to establish a decision within a group.

<sup>7</sup> The number of self-identified cancers ( $n = 2$ ) was smaller than the number of dependent variables ( $n = 5$ ), and no self-identified malingerers existed ( $n = 0$ ). Thus, MANOVA were not run for these two roles.

**Teammate-identified role occupancy (nominated by at least 50% of teammates participating in the study).** On average per team, the number of teammate-identified role occupants ranged from 0.93 (enforcers) to 2.29 (mentors) for positive roles, and from 0.21 (cancers) to 0.57 (malingerers) for negative roles. See Table 2 for details. As for congruence between self- and teammate-identified role occupancy, the results generally showed a moderately high degree of agreement (see Table 4). With the exception of the team player role that showed 112 incongruent cases (57.7%) out of 194 cases, the number of congruent cases for all other roles was above 50%. Most incongruent cases involved the athletes self-identifying as occupants of positive roles but not receiving 50% of their teammates' nominations (i.e., *over-identification*), rather than the opposite scenario (i.e., athletes who did not self-identify but were identified by 50% of their teammates; *under-identification*). See Table 4.

**Personality and self-identified role occupancy.** Descriptive statistics regarding the personality scores are provided in Supplemental Material 1. MANOVA revealed statistically significant differences between self-identified role occupants and non-role occupants in terms of their personality scores for three roles (see Table 5)<sup>8,9</sup>.

---

<sup>8</sup> Only statistically significant findings are reported. Detailed results of the MANOVA including the null results can be found in Supplemental Material 3.

<sup>9</sup> The assumption of independent cases was considered met given that there was no logical reason to expect athletes' self-identification as role occupants to be interdependent. The number of cases in each group was larger than the number of dependent variables (i.e., more than 5 cases) with the exception of the cancer and malingerer roles: The number of self-identified cancers ( $n = 2$ ) was smaller than the number of dependent variables ( $n = 5$ ), and no self-identified malingerers existed ( $n = 0$ ). Thus, MANOVA were not run for these two roles. The assumption of the absence of multicollinearity was met given that all bivariate correlations among the big five personality variables were .33 or below in magnitude. Inspection of descriptive statistics (e.g., skewness, kurtosis), Quantile-Quantile plots, and Shapiro-Wilk's tests revealed that the assumption of multivariate normality was not met in some cases. However, these violations were not considered serious because MANOVA is relatively robust against violating this assumption and because most groups included 20 or more cases (Field, 2018). The assumption of homogeneity of variance for each comparison was assessed using Levene's test. Though this assumption was met for most comparisons, a few comparisons indicated statistically significant Levene's tests at  $p < .05$ , indicating violations of this assumption. In such cases,  $p$  values for the mean comparisons based on equal variances assumed vs. not assumed were compared, which revealed that the significance testing results were mostly consistent between the two conditions. Box's test was statistically significant at  $p < .001$  for the team player role comparison only, indicating a violation of homogeneity of covariances (Field, 2018). Thus, interpretations for this specific comparison should be

**Comedians.** The multivariate analysis revealed a statistically significant result,  $F(5, 180) = 3.22, p = .008$ ; Wilk's  $\Lambda = .92$ , partial  $\eta^2 = .08$ . Follow-up univariate comparisons revealed no statistically significant differences for any of the five dependent variables at  $p < .01$ . The statistically significant multivariate result appeared to be mostly driven by extraversion; those who self-identified as the team comedians ( $n = 62$ ) appeared to display higher extraversion,  $F(1, 184) = 6.62, p = .011$ ; partial  $\eta^2 = .04$ , than those who did not ( $n = 124$ ).

**Verbal informal leaders.** The multivariate analysis revealed a statistically significant result,  $F(5, 178) = 4.09, p = .002$ ; Wilk's  $\Lambda = .90$ , partial  $\eta^2 = .10$ . Follow-up univariate comparisons revealed that those who self-identified as the team verbal informal leaders ( $n = 62$ ) were less neurotic,  $F(1, 182) = 10.07, p = .002$ ; partial  $\eta^2 = .05$ , more extraverted,  $F(1, 182) = 7.16, p = .008$ ; partial  $\eta^2 = .04$ , and more conscientious,  $F(1, 182) = 9.97, p = .002$ ; partial  $\eta^2 = .05$ , than those who did not ( $n = 122$ ).

**Distracters.** The multivariate analysis revealed a statistically significant result,  $F(5, 169) = 4.67, p = .001$ ; Wilk's  $\Lambda = .88$ , partial  $\eta^2 = .12$ . Follow-up univariate comparisons revealed that those who self-identified as the team distracters ( $n = 11$ ) were less conscientious,  $F(1, 173) = 9.44, p = .002$ ; partial  $\eta^2 = .05$ , than those who did not ( $n = 164$ ).

No statistically significant differences were found for spark plug, enforcer, mentor, non-verbal informal leader, team player, star player, social convener, cancer, and malingerer roles.

**Personality and teammate-identified role occupancy.** The bivariate correlations between the percentage of teammate nominations that each athlete received for each role and their personality scores are summarized in Supplemental Material 4. The multiple linear

---

made with caution. Further, the comparisons for the distracter role should be interpreted with caution given the heavily unbalanced groups (i.e., 11 distracters vs. 164 non-distracters).

regression analyses revealed that athletes' teammate-identified occupancy of several informal roles was predicted by their personality scores (see Table 6 for details)<sup>10</sup>.

**Comedians.** The percentage of teammate-nominations that each athlete received as the team comedians was positively predicted by extraversion,  $\beta = .22$ ,  $t(189) = 3.08$ ,  $p = .002$ ,  $\Delta R^2 = 0.04$ , Overall model: Adjusted  $R^2 = .04$ ,  $F(1, 189) = 9.47$ ,  $p = .002$ .

**Mentors.** The percentage of teammate-nominations that each athlete received as the team mentors was negatively predicted by neuroticism,  $\beta = -.19$ ,  $t(189) = -2.65$ ,  $p = .009$ ,  $\Delta R^2 = 0.03$ , Overall model: Adjusted  $R^2 = .03$ ,  $F(1, 189) = 7.04$ ,  $p = .009$ .

**Verbal informal leaders.** The percentage of teammate-nominations that each athlete received as the verbal informal leaders was negatively predicted by neuroticism,  $\beta = -.19$ ,  $t(189) = -2.65$ ,  $p = .009$ ,  $\Delta R^2 = 0.03$ , Overall model: Adjusted  $R^2 = .03$ ,  $F(1, 189) = 7.00$ ,  $p = .009$ .

**Star players.** The percentage of teammate-nominations that each athlete received as the team star players was negatively predicted by agreeableness,  $\beta = -.22$ ,  $t(189) = -3.16$ ,  $p = .002$ ,  $\Delta R^2 = 0.05$ , Overall model: Adjusted  $R^2 = .05$ ,  $F(1, 189) = 9.96$ ,  $p = .002$ .

**Distracters.** The percentage of teammate-nominations that each athlete received as the team distracters was predicted by conscientiousness,  $\beta = -.26$ ,  $t(188) = -3.62$ ,  $p < .001$ ,  $\Delta R^2 = 0.04$ , and extraversion,  $\beta = .21$ ,  $t(188) = 2.91$ ,  $p = .004$ ,  $\Delta R^2 = 0.04$ , Overall model: Adjusted  $R^2 = .08$ ,  $F(2, 188) = 9.13$ ,  $p < .001$ . See Table 6.

---

<sup>10</sup> The independent variables and dependent variables were assumed to be linearly related. The assumptions of independent observation (i.e., all Durbin-Watson statistic values were within the range of 1-3) and multicollinearity (i.e., all tolerance values were above .40) were met (Field, 2018). However, the assumptions of normality of residuals and homoscedasticity were not met in many cases. To address these violations, 95% bootstrap confidence intervals (5,000 samples) of the unstandardized regression coefficients that do not rely on these assumptions were estimated. The statistical significance testing results based on these estimates were mostly consistent with the main regression results.

No statistically significant predictors were found for spark plug, enforcer, non-verbal leader, team player, social convener, cancer, and malingerer roles.

### **Summary of Findings (Study 2)**

Study 2 extended the findings of Study 1 by examining the relationship between athlete personality characteristics and occupancy of informal roles as identified by teammates, in addition to self-identification. For most teams, the majority of the team members (i.e., 50%) were able to come to an agreement on the identification of the occupants of various informal roles within their teams. These findings add to those of Cope et al. (2011) by further solidifying the existence and relevance of informal roles in sport settings.

In general, a moderately high degree of agreement was observed between athletes' self-identified occupancy of roles and their teammates' collective identification (Table 4). Most incongruent cases involved athletes committing an over self-identification as the occupants of positive roles (i.e., self-identifying as role occupants but not receiving the majority of their teammates' nominations). This observation can suggest two possibilities. First, as discussed in the limitations section in Study 1, athletes' self-identification may be prone to various sources of self-serving bias that involve beliefs that they are more influential than what is actually perceived by their teammates. Second, it is possible that the cut-off criterion (50% of teammates' nominations) in determining teammate-identified role occupancy was too conservative, which may have categorized those who truly served certain informal role functions in their team environments as "non-role occupants". As an illustrative example, athletes may take on an informal leadership/mentorship role to only a subset of their teammates (e.g., first-year athletes), in which case they will only be nominated as the team informal leader or mentor by the specific subgroup and thus not reach the 50% cut-off criterion.

MANOVA comparing the big five personality dimensions between role occupants and non-role occupants based on self-identification revealed that verbal leaders reported lower neuroticism, higher extraversion, and higher conscientiousness, and distracters reported lower conscientiousness. Associations between the personality dimensions and occupancy of other roles (comedian, spark plug, enforcer, mentor, non-verbal leader, team player, star player, social convener, cancer, malingerer) were statistically non-significant. Multiple regression results revealed that extraversion positively predicted teammate-nominations as comedians and distracters, neuroticism negatively predicted teammate-nominations as mentors and verbal leaders, and agreeableness negatively predicted teammate-nominations as star players. Teammate-nominations as spark plugs, enforcers, non-verbal leaders, team players, social conveners, cancers, and malingerers were not predicted by any of the big five dimensions.

### **General Discussion (Project One)**

The overall purpose of the two studies in this manuscript was to examine how athletes' personality characteristics relate to the informal roles they occupy on their teams. Study 1 gathered data from 340 athletes in France and their self-identified role occupancy, and Study 2 gathered data from 195 athletes in Canada and their role occupancy based on their self-identification as well as their teammates' nominations.

Across both role identification methods and the two studies (i.e., self-identification in both studies and teammate-identification in Study 2), there were some consistent results regarding athlete personality and informal role occupancy. First, team comedians tend to be more extraverted<sup>11</sup>, and distracters tend to be less conscientious. Given that extraversion involves

---

<sup>11</sup> The comparison of extraversion between self-identified comedians and non-comedians in Study 2 closely approached reaching significance ( $p = 0.011$ ), with a comparable effect size (partial  $\eta^2 = .04$ ) to other significant findings.

one's tendency to be outgoing, sociable, and outspoken, and that conscientiousness involves being organized and reliable (McCrae & Costa, 2010), these findings make conceptual sense. These findings are also in line with the general expectations that extraversion may be positively associated with occupancy of facilitative roles, and conscientiousness may be negatively associated with debilitating roles. Given the cross-sectional nature of the current studies, future research may examine whether these informal roles mediate the way in which athlete personality influences team functioning in longitudinal designs. For instance, specific outcome variables such as athlete satisfaction (Riemer & Chelladurai, 1998), intentions to return (Spink, 1995), and team cohesion (Carron, Widmeyer, & Brawley, 1985) may be examined in relation to informal role structures in sport teams.

Interestingly, those who were viewed as distracters tended to be more extraverted, which contradicted the expected negative associations between debilitating roles and extraversion. Given extraversion's positive associations with both comedian and distracter roles, it appeared possible that occupying one of these roles is related to occupying the other. Post-hoc analyses revealed a moderate and positive correlation between receiving nominations as the team comedian and as the distracter,  $r = 0.42$ ,  $p < 0.001$ , and this was the only significant positive correlation between a positive and a negative role (Supplemental Material 5). This result may imply that the same behaviours exhibited by an athlete may be viewed as humorous by certain teammates and/or under certain contexts, or as distracting by other teammates in other contexts. Existing research on humor also demonstrated that there are individual differences in the acceptance of various types of humor (e.g., offensive jokes; Herzog & Anderson, 2000). Given that humor has been generally regarded as a positive element in athletic settings (e.g., Sullivan,

2013), future research is warranted to provide more in-depth information regarding these two roles, including the potential negative influences of athletes' use of humor.

The results based on multiple regressions in Study 2 revealed that agreeableness had a statistically significant negative association with the number of teammate-nominations athletes received as team star players. Interestingly, an in-depth post-hoc examination of earlier MANOVA revealed that univariate comparisons regarding agreeableness between self-identified star players and non-star players demonstrated similar trends<sup>12</sup>, evidence of consistency for this finding (although the multivariate tests for comparing all five personality dimensions between star and non-star players did not reach significance). This finding was surprising because agreeableness was expected to be positively associated with the occupancy of star player (i.e., facilitative) roles, based on the organizational psychology literature that has shown agreeableness to be a beneficial trait in work group settings (e.g., Prewett et al., 2009). Two possibilities exist regarding this finding. On one hand, it is possible that the athletes who stand out as star players among their teammates are the athletes with the best athletic talent and skills on the team, and thus are trusted to execute individual plays when the team-based tactics are not working during competitions. Such a role responsibility may be more suitable for an athlete with lower levels of agreeableness who may be more willing to attempt individual plays rather than being focused on cooperating with his/her teammates. On the other hand, these athletes may simply be concerned more about their personal goals and performance rather than the team's collective objectives, and thus may be less likely to cooperate with others. Further investigation appears warranted to assess whether this negative association between athlete agreeableness and the star player role is robust. Given that the current study did not assess athletes' skill levels or goal-orientations (Duda

---

<sup>12</sup> Self-identified star players tended to report lower agreeableness in study 1 ( $M = 3.70$  vs.  $3.99$ ;  $p = 0.019$ ) and study 2 ( $M = 28.78$  vs.  $32.56$ ;  $p = 0.001$ ). See Supplemental Materials 2 and 3.



& Nicholls, 1992), future research may also examine these variables in relation to the star player informal role to understand the ramifications of this relationship in sport team contexts.

Mentors, as identified by teammates, tended to be more emotionally stable. However, self-identified mentors did not report higher emotional stability in either studies. A possible explanation is that emotional stability may not be related to the likelihood that an individual engages in mentorship behaviours (e.g., teaching/helping others), but it may distinguish between effective mentors from less effective ones from others' perspectives. In other words, though some individuals may deliberately engage in mentorship behaviours regardless of their emotional stability (and thus self-identify as mentors), these behaviours may only be viewed by others as effective or authentic (and thus garner teammate-nominations) if the individual displays higher emotional stability. This explanation also coincides with the general leadership literature (e.g., Bono & Judge, 2004; Judge et al., 2002) that consistently demonstrated a negative link between leadership and neuroticism. Given that the current study did not assess mentorship effectiveness/authenticity, future research may examine how athlete neuroticism relates to various aspects of athlete leadership/mentorship (e.g., leadership/mentorship effectiveness, leadership/mentorship styles) to test this explanation.

The results regarding non-verbal and verbal leaders were rather inconsistent across studies and role identification methods. Self-identified non-verbal leaders were less extraverted and more agreeable in Study 1, but these associations were not found in Study 2. Verbal leaders were more conscientious only when role occupancy was based on self-identification, and verbal leaders based on self- and teammate-identification in Study 2 were more emotionally stable, but this was not seen in Study 1. Higher extraversion was noted for self-identified verbal leaders in Study 2 only. Such mixed findings make it difficult to deduce conclusive patterns regarding the

association between athlete personality and the occupancy of these two roles. It is also worthwhile to note that the two studies were conducted with two different samples (French for Study 1, Canadian for Study 2), and that informal role occupancy was assessed differently in the two studies: The participants in Study 1 were asked to self-identify as occupants of only up to three informal roles, whereas such restrictions were not applied for the participants in Study 2 for their self-identification. Further, Study 2 utilized teammate-nominations in addition to self-identification, which was not considered in Study 1. These differences in samples and role identification methods may partially explain the aforementioned inconsistent findings. A replication of examination of this association, as well as investigating other non-trait factors (e.g., team tenure, starting status) in relation to these two roles, may provide additional insights.

Openness to experience was not related to the occupancy of any informal roles. Such findings (or lack thereof) should be considered in light of the concept of openness to experience. That is, openness to experience relates to one's tendency to be curious and to seek novel experiences (McCrae & Costa, 2010), which does not seem to be conceptually linked with the informal roles under investigation. In other words, being more (or less) open to experience does not appear to warrant one to act as the team comedian, spark plug, enforcer, and so on. It should also be noted that the measure of openness in both samples demonstrated a relatively low internal reliability (Cronbach's  $\alpha = .66$ ) in comparison to other personality dimensions.

No associations were found between athlete personality and occupancy of the spark plug, enforcer, team player, social convener, cancer, and malingerer roles across the studies and role identification methods. These null findings may be partially explained by the large imbalance between the number of role occupants vs. non-role occupants, particularly for negative roles (i.e., substantially greater number of non-role occupants). For the statistically significant associations

that the current studies found (e.g., extraversion and comedians, conscientiousness and distracters, agreeableness and teammate-identified star players, neuroticism and teammate-identified mentors), generally small effect sizes were noted ( $\beta$  ranging from 0.19 to 0.26 in magnitude,  $\Delta R^2$  ranging from 0.03 to 0.05). The null findings, as well as the small effect sizes of the significant findings, are not conceptually surprising because informal role occupancy is proposed to involve a combination of athlete personal characteristics and other interactional factors/processes within the team (Benson et al., 2016; Eys et al., 2005; Kahn et al., 1964). For example, examining individual factors such as team tenure, starting status, age, and gender, as well as team factors such as time spent together as a team, competition levels, types of sports (e.g., contact vs. non-contact), and contextual settings (e.g., competition vs. training settings), may provide additional insights regarding informal role emergence.

### **Limitations and Future Directions**

Although the current studies provide useful insights on the relationship between athlete personality characteristics and informal role occupancy in interdependent sport team settings, a few limitations must be considered. First, as it pertains to the data analysis, the exploratory nature of the studies necessitated running many statistical tests (i.e., 12 MANOVA in each study and 12 multiple regressions in Study 2). As such, a more stringent alpha level ( $p < .01$ ) was used to control for the possibility of inflated type I errors. In addition, multiple regressions in Study 2 relied on stepwise entry method, which tends to rely more heavily on statistical, rather than theoretical, criteria for determining significant predictors (Tabachnick & Fidell, 2013). Despite such limitation, this method was deemed appropriate given the early stage of research examining personality and informal role occupancy, and the method's usefulness for exploratory (rather

than confirmatory) purposes<sup>13</sup>. The current findings provide some bases for establishing a-priori hypotheses regarding athlete personality and informal role occupancy that should be tested in future studies with more confirmatory analytic approaches.

Second, only the big five characteristics, and their global dimensions, were assessed as part of the athletes' personality. The FFM indicates that each big five dimension includes six facets (e.g., extraversion includes facets of *warmth*, *gregariousness*, *assertiveness*, *activity*, *excitement-seeking*, and *positive emotions*) that collectively load onto the global dimensions (McCrae & Costa, 2010). Examining the different facets of each dimension in relation to informal role occupancy in the future will provide additional insights. Other variables may also be considered as part of athletes' individual characteristics. For instance, Cope et al. (2010) discussed athletes' narcissism (i.e., sense of self-focus, entitlement, and inflated perceptions of one's ability; Morf & Rhodewalt, 2001) in relation to the team cancer roles. Given the inflated perceptions of self (Morf & Rhodewalt, 2001), it may also be logical to examine athletes' narcissism and their commitment of over-identification as positive informal role occupants.

Third, the data were collected only at one time point. Although assessing athlete personality factors as predictors of informal role occupancy made sense based on the conceptualization that the big five dimensions are human universal traits (e.g., McCrae & Costa, 1997), the cross-sectional nature of the studies prevents establishing causal relationships. Testing the current findings (e.g., extraversion and comedians, conscientiousness and distracters) within a longitudinal design will provide a stronger basis for establishing causality. For instance, athlete

---

<sup>13</sup> As a cautionary measure, multiple regressions based on the forced entry method were also conducted. Out of the 12 multiple regressions, 3 resulted in different statistical conclusions (comedian, mentor, verbal informal leader) and are presented in Table 6. Though the results became statistically non-significant (overall models for comedian:  $p = .012$ , mentor:  $p = .127$ , verbal informal leader:  $p = .164$ ), the standardized beta values for individual predictors remained comparable/consistent. See Table 6.

personality assessed closer to the beginning of the season may be examined as predictors of informal role occupancy assessed at later points (e.g., mid-season, end of season) of the season. Fourth, the current studies did not assess any specific outcome variables. Currently, there is only a limited level of understanding regarding the influence of informal roles within sport teams. Although Cope et al. (2011) provided information on athletes' perceived ratings of each role's influence on overall team functioning, this information did not include any specific outcome variables. Cope et al. (2010) provided more in-depth, qualitative evidence regarding the negative influences that team cancers can have on team functioning; however, their study invariably only considered this one role and was descriptive in nature. Examining how informal roles can influence specific group-oriented variables (e.g., cohesion) appears warranted.

### **Conclusion**

The two studies in this paper provided the first set of empirical evidence supporting the theoretical notion that athlete personality characteristics may play an important role in informal role occupancy (Benson et al., 2016; Eys et al., 2005), and align with the pioneering work in the organizational psychology that proposed that members' personality may be related to the various roles they adopt and perform in small group settings (Kahn et al., 1964; Mann, 1959). These studies also add to the understudied area of personality research in sport settings. A strength of this paper is that informal role occupancy and its association with athlete personality characteristics were demonstrated with samples from two countries, as well as based on two role identification methods (i.e., self-report and nominations from teammates). These findings offer several avenues for future research that can add to the current knowledge of how informal roles emerge in sport teams and influence individual and team functioning. Advancing knowledge in this area is important theoretically as it will fill gaps in the body of literature that largely focuses

on formal roles. Such knowledge can ultimately be used to promote optimal informal role structures within sport teams, leading to more positive team environments conducive to better athletic experience and team functioning.

### **Transition Statement**

Findings from Project One indicated that athletes' personality may underpin their informal role occupancy. However, an important limitation of this project was that data were collected only at one time point, which does not allow establishing directional relationships between personality and informal role occupancy. Further, though informal roles are purported to have important ramifications for individual and group functioning (Cope et al., 2011; Eys et al., 2014), research to date has only garnered athletes' general ratings of informal roles in terms of their benefits/detriments (Cope et al., 2011) or perspectives of coaches and athletes focusing on one role via qualitative interviews (e.g., team cancer; Cope et al., 2010). In short, no research to date has examined informal roles in relation to specific outcomes. As such, the subsequent project (Project Two) re-tested the personality-informal role occupancy relationship at two different time points, and also examined how the presence of informal role occupants influenced teammates' perceptions of team cohesion, satisfaction, and intentions to return.

## References

- Allen, M. S., Greenlees, I., & Jones, M. (2011). An investigation of the five-factor model of personality and coping behaviour in sport. *Journal of Sports Sciences*, 29, 841-850. doi:10.1080/02640414.2011.565064.
- Allen, M. S., Greenlees, L., & Jones, M. (2013). Personality in sport: A comprehensive review. *International Review of Sport and Exercise Psychology*, 6, 184-208. doi:10.1080/1750984X.2013.769614.
- Bass, B. M. (1990). From transactional to transformational leadership: Learning to share the vision. *Organizational Dynamics*, 18, 19-31. doi:10.1016/0090-2616(90)90061-S.
- Beauchamp, M. R., Jackson, B., & Lavallee, D. (2014). Into the mix: Personality processes and group dynamics in sport teams. In M. R. Beauchamp & M. A. Eys (Eds.), *Group dynamics in exercise and sport psychology* (2<sup>nd</sup> ed., pp. 21-37). New York: Routledge.
- Bell, S. T. (2007). Deep-level composition variables as predictors of team performance: A meta-analysis. *Journal of Applied Psychology*, 92, 595-615. doi:10.1037/0021-9010.92.3.595.
- Benson, A. J., Eys, M., Surya, M., Dawson, K., & Schneider M. (2013). Athletes' perceptions of role acceptance in interdependent sport teams. *The Sport Psychologist*, 27, 269-280. doi:10.1123/tsp.27.3.269.
- Benson, A. J., Surya, M., & Eys, M. (2016). The dynamic management of athletes' role expectations. In P. A. Davis (Ed.), *The psychology of effective coaching and management* (pp. 203-216). New York: Nova Science Publishers, Inc.
- Biddle, B. J., & Thomas, E. J. (1966). *Role theory: Concepts and research*. New York, NY: Wiley.

- Bono, J. E., & Judge, T. A. (2004). Personality and transformational and transactional leadership: A meta-analysis. *Journal of Applied Psychology*, 89, 901-910. doi:10.1037/0021-9010.89.5.901.
- Carreau, J. M., Bosselut, G., Ritchie, S. D., Heuzé, J. P., & Arppe, S. (2016). Emergence and evolution of informal roles during a canoe expedition. *Journal of Adventure Education and Outdoor Learning*, 16, 191-205. doi:10.1080/14729679.2015.1122539.
- Carron, A. V., & Eys, M. A. (2012). *Group dynamics in sport* (4<sup>th</sup> ed.). Morgantown, WV: Fitness Information Technology.
- Carron, A. V., Widmeyer, W. N., & Brawley, L. R. (1985). The development of an instrument to assess cohesion in sport teams: The Group Environment Questionnaire. *Journal of Sport and Exercise Psychology*, 7, 244-266. doi:10.1123/jsp.7.3.244.
- Cope, C. J., Eys, M. A., Beauchamp, M. R., Schinke, R. J., & Bosselut, G. (2011). Informal roles in sport teams. *International Journal of Sport and Exercise Psychology*, 9, 19-30. doi:10.1080/1612197X.2011.563124.
- Cope, C. J., Eys, M. A., Schinke, R. J., & Bosselut, G. (2010). Coaches' perspectives of a negative informal role: The 'cancer' within sport teams. *Journal of Applied Sport Psychology*, 22, 420-436. doi:10.1080/10413200.2010.495327.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297-334. doi:10.1007/BF02310555.
- Duda, J. L., & Nicholls, J. G. (1992). Dimensions of achievement motivation in schoolwork and sport. *Journal of Educational Psychology*, 84, 290-299. doi:10.1037/0022-0663.84.3.290.



- Eys, M. A., Carron, A. V., Beauchamp, M. R., & Bray, S. R. (2005). Athletes' perceptions of the sources of role ambiguity. *Small Group Research*, 36, 383-403.  
doi:10.1177/1046496404268533.
- Eys, M. A., Carron, A. V., Bray, S. R., & Beauchamp, M. R. (2003). Role ambiguity and athlete satisfaction. *Journal of Sport Sciences*, 21, 391-401. doi:10.1080/0264041031000071137.
- Eys, M. A., Schinke, R. J., Surya, M., & Benson, A. J. (2014). Role perceptions in sport groups. In M. R. Beauchamp & M. A. Eys (Eds.), *Group dynamics in exercise and sport psychology* (2<sup>nd</sup> ed., pp. 131-146). New York: Routledge.
- Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5<sup>th</sup> ed). London, Sage.
- Hare, A. P. (1994). Types of roles in small groups: A bit of history and a current perspective. *Small Group Research*, 25, 433-448.
- Herzog, T. R., & Anderson, M. R. (2000). Joke cruelty, emotional responsiveness, and joke appreciation. *Humor: International Journal of Humor Research*, 13, 333-351.  
doi:10.1515/humr.2000.13.3.333.
- Jackson, B., Dimmock, J. A., Gucciardi, D. F., & Grove, J. R. (2010). Relationship commitment in athletic dyads: Actor and partner effects for Big Five self- and other-ratings. *Journal of Research in Personality*, 44, 641-648. doi:10.1016/j.jrp.2010.08.004.
- John, O. P., & Robins, R. W. (1994). Accuracy and bias in self-perception: Individual differences in self-enhancement and the role of narcissism. *Journal of Personality and Social Psychology*, 66, 206-219. doi:10.1037/0022-3514.66.1.206.
- Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. W. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology*, 87, 765-780.  
doi:10.1037/0021-9010.87.4.765.

Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A. (1964).

*Organizational stress: Studies in role conflict and ambiguity*. New York: Wiley.

Kaiseler, M., Levy, A., Nicholls, A. R., & Madigan, D. J. (2017). The independent and interactive effects of the Big-Five personality dimensions upon dispositional coping and coping effectiveness in sport. *International Journal of Sport and Exercise Psychology*. Advance online publication. doi:10.1080/1612197X.2017.1362459.

Mann, R. D. (1959). A review of the relationships between personality and performance in small groups. *Psychological Bulletin*, 56, 241-270. doi:10.1037/h0044587.

McCrae, R. R., & Costa, P. T. (1997). Personality trait structure as a human universal. *American Psychologist*, 52, 509-516. doi:10.1037/0003-066X.52.5.509.

McCrae, R. R., & Costa, P. T. (2010). *NEO inventories: Professional manual*. Lutz, FL: Psychological Assessment Resources.

Morf, C. C., & Rhodewalt, F. (2001). Unraveling the paradoxes of narcissism: A dynamic self-regulatory processing model. *Psychological Inquiry*, 12, 177-196. doi:10.1207/S15327965PLI1204\_1.

Peeters, M. A. G., Van Tuijl, H. F. J. M., Rutte, C. G., & Reymen, I. M. M. J. (2006). Personality and team performance: A meta-analysis. *European Journal of Personality*, 20, 377-396. doi:10.1002/per.588.

Piedmont, R. L., Hill, D. C., & Blanco, S. (1999). Predicting athletic performance using the five-factor model of personality. *Personality and Individual Differences*, 27, 769-777. doi:10.1016/S0191-8869(98)00280-3.

- Plaisant, O., Courtois, R., Réveillère, C., Mendelsohn, G. A., & John, O. P. (2010). Analyse factorielle du Big Five Inventory français (BFI-Fr). Analyse convergente avec le NEO-Pi-R. *Annales Médico-Psychologiques*, 168, 97–106. doi:10.1016/j.amp.2009.09.003.
- Prewett, M. S., Brown, M. I., Goswami, A., & Christiansen, N. D. (2016). Effects of team personality composition on member performance: A multilevel perspective. *Group & Organization Management*, 43, 316-348. doi:10.1177/1059601116668633.
- Prewett, M. S., Walvoord, A. A. G., Stilson, F. R. B., Rossi, M. E., & Brannick, M. T. (2009). The team personality-team performance relationship revisited: The impact of criterion choice, pattern of workflow and method of aggregation. *Human Performance*, 22, 273-296. doi:10.1080/08959280903120253.
- Riemer, H. A., & Chelladurai, P. (1998). Development of the Athlete Satisfaction Questionnaire (ASQ). *Journal of Sport and Exercise Psychology*, 20, 127-156. doi:10.1123/jsep.20.2.127.
- Shaw, M. E. (1981). *Group dynamics: The psychology of small group behaviour* (3<sup>rd</sup> ed.). New York: McGraw-Hill.
- Spink, K. S. (1995). Cohesion and intention to participate of female sport team athletes. *Journal of Sport and Exercise Psychology*, 17, 416-427. doi:10.1123/jsep.17.4.416.
- Steca, P., Baretta, D., Greco, A., D'Addario, M., & Monzani, D. (2018). Associations between personality, sports participation and athletic success. A comparison of Big Five in sporting and non-sporting adults. *Personality and Individual Differences*, 121, 176-183. doi:10.1016/j.paid.2017.09.040.
- Sullivan, P. (2013). Humor styles as a predictor of satisfaction within sport teams. *Humor: International Journal of Humor Research*, 26, 343-349. doi:10.1515/humor-2013-0023.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6<sup>th</sup> ed.). Boston, MA: Pearson.

## PROJECT TWO: THE ANTECEDENTS AND OUTCOMES OF INFORMAL ROLES IN INTERDEPENDENT SPORT TEAMS<sup>14</sup>

Many sports occur in team contexts that require individual members to work together to achieve a common purpose (e.g., basketball, soccer, ice hockey). Promoting effective group functioning involves various challenges pertaining to the group's environment, structure, and processes (Carron & Eys, 2012). A particular structural element important to group success is the role structure (Eys, Schinke, Surya, & Benson, 2014). Roles entail the set of behavioural expectations held for each member of a group (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964), and help divide labor among the members and maximize the team's overall productivity.

Roles can be classified into two different types depending on their degree of formality (Benson, Surya, & Eys, 2016; Hare, 1994). *Formal* role responsibilities are typically transmitted within the group via iterative processes whereby an authority figure (e.g., coach) assigns role responsibilities to a group member (Kahn et al., 1964). *Informal* roles, in contrast, are expected to arise in response to a group's existing formal structure and as a result of interactions among the group members (Hare, 1994). Though previous research provided evidence supporting the importance of clear role structures in sport teams (see Eys et al., 2014, for a review of role-related research in sport), this literature has largely been limited to formal roles. In contrast, the examination of informal role dynamics across contexts (e.g., sport and organizational psychology) is still in its infancy. However, Cope, Eys, Beauchamp, Schinke, and Bosselut (2011) highlighted the relevance of informal roles in sport teams. They conducted a content analysis of 448 articles from 112 *Sports Illustrated* magazines to create a list of informal roles, and supported this list through feedback from 101 team sport athletes. As a result, the authors

---

<sup>14</sup> A version of this paper is published in the journal *Sport, Exercise, and Performance Psychology*.

identified a total of nine positive and three negative informal roles in sport teams (Table 1), though they indicated that the list was not considered to be exhaustive. As examples, a team *comedian* may emerge and engage in humorous actions, or a team *cancer/bad apple* may materialize and create a negative atmosphere within the team (Cope et al., 2011; Cope, Eys, Schinke, & Bosselut, 2010).

Given the potential influence of informal roles in sport teams, there is a need to understand how they emerge. One potential antecedent is group member personality (Kahn et al., 1964). There are several conceptual bases for examining personality as an antecedent of informal role occupancy. First, in their comprehensive review of personality research in sport, Allen, Greenlees, and Jones (2013) suggested that particular role responsibilities may be executed more effectively by individuals with certain personality characteristics. Second, in Kahn et al.'s role episode model (1964) that served as a conceptual framework for role research in sports, various role occupant-related factors, including his/her personality characteristics, were purported to influence how role responsibilities are shaped. Third, for sport teams specifically, Benson et al. (2016) highlighted that informal roles may naturally emerge over time as team members establish a deeper understanding of each other's personalities and thus develop behavioural expectations of one another.

Recently, Kim, Gardant, Bosselut, and Eys (2018) provided empirical evidence supporting the link between athlete personality and informal role occupancy. Their study was grounded within the five-factor model of personality (McCrae & Costa, 2010) that includes the following dimensions: openness to experience (i.e., preference for novelty over habit), conscientiousness (i.e., diligence, thoroughness), extraversion (i.e., sociability), agreeableness (i.e., tendency to be cooperative, selfless), and neuroticism (i.e., emotional instability). Athletes'

informal role occupancy was assessed based on their self-identification as well as nominations from their teammates. Several interesting patterns of results emerged. First, team comedians and distracters were more extraverted, and distracters were also less conscientious. As well, those who were nominated as the team comedian were often also nominated as the team distracter (positive correlation between nominations as the team comedian and distracter), highlighting a degree of overlap between these two roles. Second, those athletes who were nominated as the team mentors and verbal informal leaders tended to indicate more emotional stability (i.e., lower neuroticism). Third, those athletes who were nominated as the team's star player tended to be less agreeable. Overall, Kim et al. provided preliminary evidence supporting the notion that athlete personality is related to the occupancy of some informal roles in sport team contexts. However, an important limitation was that data were collected only once, which necessitates a follow-up investigation using multiple time points to extend the findings.

In addition to the need for re-examining personality as an antecedent of informal role occupancy, there is also a need to explore the influence of informal role occupancies on athlete experiences and sport team functioning. Carron and Eys (2012), in their conceptual framework of group dynamics, asserted that the group's structural elements, such as athletes' role involvement, have the potential to indirectly influence various individual- (e.g., satisfaction, retention) and group-oriented (e.g., cohesion) outcomes. However, research to date has not explored the outcomes of informal role structures. Though Cope et al. (2011) queried athletes' perceptions of the overall effects of each informal role on their team and classified the roles into facilitative (e.g., team comedians, mentors) and debilitating (e.g., team cancers, distracters) roles, they did not assess any specific outcome variables in relation to the roles. Further, Cope et al. (2010) and Leggat, Smith, and Figgins (2019) provided qualitative information regarding how

team cancers/bad apples can influence the team, but these studies focused solely on this one negative role and only through interviews with coaches and athletes. Taken together, it is important to extend these studies by empirically examining how informal roles can influence specific aspects of athlete experiences and overall team functioning.

Cope et al.'s (2011) findings offer insight as to which outcome variables may be affected by athletes' informal role occupancies. Specifically, they found that informal roles were often discussed in relation to group cohesion (i.e., a group's tendency to remain united during task- and social-oriented activities; Carron, Widmeyer, & Brawley, 1985) and athlete satisfaction (Riemer & Chelladurai, 1998), and urged future researchers to examine the degree to which various informal roles relate to these variables. These variables (i.e., cohesion, member satisfaction) have been extensively examined within organizational psychology (e.g., Evans & Dion, 1991) and sport group dynamics literatures (Carron & Eys, 2012) as they are inherently related to group success and maintenance over time. An additional outcome that is worth examining is athlete retention (Spink, 1995), which also has been examined widely as a critical component of group maintenance over time within organizational psychology (e.g., Hancock, Allen, Bosco, McDaniel, & Pierce, 2013) and sport group dynamics (e.g., Spink, 1995).

There are several additional bases for examining cohesion, athlete satisfaction, and retention as outcomes of informal role occupancies. First, sport leadership literature has provided evidence that athletes who occupy formal and informal leader roles can influence their teammates' satisfaction and the overall team cohesion (see Cotterill & Fransen, 2016, for a review). Second, role research in sport has suggested that athletes' understanding and acceptance of formal roles are important for their satisfaction and intentions to maintain team membership, as well as for the team's cohesion (see Eys et al., 2014). Though pertaining to leadership roles



and formal roles specifically, the aforementioned literature allows one to posit that the degree to which various informal roles exist on sport teams could have important ramifications for group cohesion, member satisfaction, and member retention.

Two purposes guided the current study. The first was to extend the findings of Kim et al. (2018) by examining how athletes' personality assessed at baseline predicts their informal role occupancy assessed at a later time point during their sporting season. Several a-priori hypotheses were proposed based on Kim et al.'s findings:

H<sub>1</sub>: The degree to which athletes are viewed as the team comedian by teammates will be predicted (a) positively by extraversion and (b) negatively by conscientiousness<sup>15</sup>.

H<sub>2</sub>: The degree to which athletes are viewed as (a) the team mentor and (b) the team verbal leader by teammates will be negatively predicted by neuroticism.

H<sub>3</sub>: The degree to which athletes are viewed as the team star player by teammates will be negatively predicted by agreeableness.

H<sub>4</sub>: The degree to which athletes are viewed as the team distracter by teammates will be predicted (a) positively by extraversion and (b) negatively by conscientiousness.

Though no a-priori hypotheses were developed, athletes' occupancy of other informal roles not mentioned in the above hypotheses (i.e., spark plug, enforcer, non-verbal informal leader, team player, social convener, cancer, malingerer; Table 1) were examined in relation to their big five personality dimensions for exploratory purposes and to maintain consistency with the previous

---

<sup>15</sup> Though Kim et al.'s (2018) results did not find a statistically significant negative association between conscientiousness and teammate-nominations as the team comedian (based on  $p < .01$ ), the current study hypothesized that conscientiousness would be a negative predictor of the percentage of received teammate-nominations as the team comedian based on two reasons. First, though not statistically significant at  $p < .01$ , Kim et al. found that the association between conscientiousness and teammate-nominations as the team comedian was in a negative direction with the beta coefficient of  $-.16$  at  $p = .032$ . Second, Kim et al. found that team distracters tended to be less conscientious, and teammate-nominations as the team distracters were positively correlated with nominations as the team comedians ( $r = .42, p < .001$ ).

study conducted by Kim and colleagues.

The second purpose was to assess how informal role occupancy influences specific outcome variables. As mentioned previously, three variables that pertain to athletes' experiences within their teams and the overall team functioning were selected: group cohesion (Carron et al., 1985), athlete satisfaction (Riemer & Chelladurai, 1998), and retention (i.e., reflected by intentions to return; Spink, 1995). Given the lack of research in this area, no specific a-priori hypotheses were developed regarding the specific dimensions of the outcome variables. However, based on the classification of informal roles by Cope et al. (2011; 9 beneficial vs. 3 detrimental roles), the general expectation was that the number of teammates that athletes nominate as occupants of beneficial roles (e.g., comedians, mentors) on their teams would positively predict, and the number of teammates that athletes nominate as occupants of detrimental roles (e.g., cancers, distracters) would negatively predict, the outcome variables.

## **Methods**

### **Procedures and Participants**

Upon the approval from the authors' institutional Research Ethics Board (Appendix H), data were collected at three time points throughout the participating sport teams' seasons, with each time point separated by approximately two weeks. The recruited sample included 125 male and 161 female athletes ( $N_{\text{total}} = 286$ ,  $M_{\text{age}} = 19.83 \pm 1.85$ ,  $N_{T1} = 252$ ,  $N_{T2} = 231$ ,  $N_{T3} = 233$ ,  $N_{T1/T2/T3} = 182$ ) from 16 competitive interdependent sport teams (e.g., soccer, basketball) participating in Canadian intercollegiate athletics. Information pertaining to participant retention is summarized in Supplemental Material 1. At each time point, pen-and-paper questionnaires were administered. Informed consent was obtained from each participant prior to distributing the questionnaires (Appendix I).

## Measures

**Time 1.** The participants were asked to fill out the Big Five Inventory (BFI; John, Naumann, & Soto, 2008; Appendix J). The BFI assesses the respondents' personality in the big five dimensions and the evidence of validity and reliability of data derived from the BFI has been established (see John et al. 2008). It includes 44 items: neuroticism (8 items), extraversion (8 items), agreeableness (9 items), openness (10 items), and conscientiousness (9 items). Each item was answered on a 5-point Likert-scale from 1 ("Disagree strongly") to 5 ("Agree strongly").

**Time 2.** Given informal roles are theorized to emerge as a result of member interactions, role occupancy was assessed based on teammate-nominations. Each athlete was provided with a list and description of 12 informal roles (Table 1), and was asked to nominate his/her teammate(s) who occupied each role without being prescribed such responsibilities (Kim et al., 2018). They were allowed to nominate a given teammate for multiple roles (Appendix G).

**Time 3.** To assess athletes' perceptions of team cohesion, they were asked to fill out the Group Environment Questionnaire (GEQ; Carron et al. 1985; Appendix K). Carron and colleagues (1985) proposed and provided evidence of validity and reliability for four dimensions of cohesion: *Attractions to the Group-Task* (ATG-T; i.e., athletes' perceptions about their personal involvement with the team's task objectives; 4 items), *Attractions to the Group-Social* (ATG-S; i.e., athletes' perceptions about their personal acceptance and social interactions within the team; 5 items), *Group Integration-Task* (GI-T; i.e., athletes' perceptions of the team's overall unity toward achieving performance goals; 5 items), and *Group Integration-Social* (GI-S; i.e., athletes' perceptions of the degree of bonding among members regarding social aspects; 4 items). Each item was scored on a 9-point scale from 1 ("Strongly Disagree") to 9 ("Strongly Agree").

The Athlete Satisfaction Questionnaire (ASQ; Riemer & Chelladurai, 1998; Appendix L) was administered to assess the participants' satisfaction with their athletic experiences. Riemer and Chelladurai (1998) provided evidence of validity and reliability<sup>16</sup> for 15 dimensions of athlete satisfaction. Among them, five dimensions were selected for the purpose of this study<sup>17</sup>: athletes' satisfaction with (a) *Team Performance* (AS-TP; 3 items), (b) *Team Task Contribution* (i.e., guidance/feedback received from teammates; AS-TTC; 3 items), (c) *Team Social Contribution* (i.e., social acceptance from teammates; AS-TSC; 3 items), (d) *Team Integration* (i.e., collective efforts for task objectives; AS-TI; 4 items), and (e) *Personal Dedication* (i.e., an individual's dedication/enthusiasm at practices and competitions; AS-PD; 4 items). Each item was scored on a 7-point scale from 1 ("Not at all satisfied") to 7 ("Extremely satisfied").

Athlete retention may be assessed in various ways including attendance at practices/games or actual retention/dropout. However, athletes' *intentions to return* the following season may reflect their perception of the value of the team membership more accurately than attendance or actual retention, which may be influenced by external factors (e.g., team norms, scholarship status, deselection) (Spink, 1995). As such, two items were used to assess athletes' intentions to return: one pertaining to general sport participation ("If possible, I would like to play this sport again next season") and another pertaining to their specific team ("If possible, I would like to play for the same team again next season"), both scored on a 9-point Likert scale from 1 ("Do not agree") to 9 ("Completely agree") (Appendix M). The two items were analyzed separately. The 1-item measure of intentions has been employed in previous literature and

---

<sup>16</sup> Riemer and Chelladurai (1998) completed a comprehensive set of procedures to provide evidence for the face validity, construct validity, convergent and divergent validity, and internal reliability of the ASQ. See Riemer and Chelladurai (1998) for details.

<sup>17</sup> The remaining 10 dimensions were excluded because they were conceptually tangential to the degree to which one views teammates as informal role occupants: athletes' satisfaction with their *individual performance*, coaching influences (e.g., coach's *ability utilization*, *strategy*, *training and instruction*, and *personal treatment*), and other external factors (e.g., team's *ethics*, *budget*, *medical personnel*, *academic support services*, and *external agents*).

discussed as conceptually appropriate (cf. Spink, 1995).

## **Data Analysis**

To descriptively examine the extent to which various informal roles existed in each team, the number of athletes who received role nominations from 50% or more of their teammates was computed for each role (cf. Shaw, 1981). To examine the link between athlete personality assessed at time 1 and informal role occupancy assessed at time 2, the percentage of *received teammate-nominations* was computed for each role by dividing the number of nominations that athletes received for each role by the number of teammates who participated in teammate role nominations (i.e., total number of possible nominations). For instance, if 2 out of 20 teammates nominated athlete A as the team comedian, the percentage of received teammate-nominations for the team comedian role for athlete A was 10%. Then, 12 multiple regressions were conducted with the percentage of received teammate-nominations at time 2 for each role (i.e., 12 roles total) as the dependent variable and the big five personality scores at time 1 as the independent variables. Specifically, 5 of the 12 regressions were hierarchical multiple linear regressions (comedian, mentor, verbal informal leader, star player, distracter) conducted to test H<sub>1</sub> through H<sub>4</sub>; the hypothesized personality dimensions were entered in model 1, and all remaining big five variables were entered in model 2. Seven additional multiple regressions were conducted for the remaining informal roles not included in the hypotheses (spark plug, enforcer, non-verbal informal leader, team player, social convener, cancer, malingerer), with all five personality dimensions entered in model 1. Because all athletes on the roster had a chance to be nominated as informal role occupants regardless of their presence at time 2, data from 252 athletes were used for this analysis (i.e., the number of athletes who filled out the BFI at time 1).

To examine the link between informal roles and the outcome variables, the percentage of

*outgoing nominations* for each role was computed by dividing the number of teammates that each participant nominated by the total number of teammates on the roster. For instance, if an athlete nominated 2 out of 20 teammates as the team comedians, the percentage of outgoing nominations for the team comedian role for this athlete was 10%. Then, each dimension of the outcome variables assessed at time 3 (i.e., 11 multiple regressions) was regressed onto the percentage of outgoing nominations for each role assessed at time 2 (i.e., 12 independent variables in total). Data from 203 athletes were used for this analysis (i.e., number of athletes present at time 2 and time 3).

Forced entry method was used for all regressions in this study. To control for the inflated probability of Type I errors given the large number of statistical tests, Šidák (1967) corrections were used to adjust the alpha level for each regression model and for assessing individual predictors. As a result, statistical significance testing was based on  $p < .00427$  for assessing personality and received role nominations (i.e., 12 regressions), and  $p < .00465$  for assessing outgoing role nominations and outcome perceptions (i.e., 11 regressions)<sup>18</sup>.

## Results

The descriptive statistics regarding athletes' personality scores and outcome perceptions (i.e., group cohesion, athlete satisfaction, intentions to return) are provided in Supplemental Material 2. The inspection of the data revealed that 2.6% or less of responses were missing for some of the items at each time point<sup>19</sup>. The responses were missing completely at random,

<sup>18</sup> Šidák correction is given by  $\alpha_{\text{sid}} = 1 - (1 - \alpha)^{1/m}$ , where  $\alpha_{\text{sid}}$  is the adjusted alpha for each test,  $\alpha$  is the familywise error rate (i.e., .05), and  $m$  is the number of tests.

<sup>19</sup> At time 1, three participants did not follow the instructions for completing BFI (instead of rating the 44 statements, they circled a few statements that they felt reflected their personality). Among those who followed instructions, 1 missing response (1.1%) was noted for BFI#2, BFI#26, and BFI#36. At time 2, the numbers of missing responses for outgoing role nominations were: 1 (0.4%) for comedian, mentor, social convener roles, 2 (0.8%) for spark plug, non-verbal leader, team player, star player, and malingerer roles, 3 (1.3%) for the verbal leader role, 4 (1.7%) for the distracter role, and 6 (2.5%) for the cancer role. At time 3, the numbers of missing responses for the outcomes were: 1 (0.4%) for ATG-T#4, GI-T#3, GI-S#3, GI-T#4, GI-S#4, GI-T#5, AS-TP#2, AS-

$\chi^2(344) = 374.68, p = .123$  (analysis pertaining to personality predicting received role nominations),  $\chi^2(217) = 220.33, p = .424$  (analysis pertaining to outgoing role nominations predicting outcome perceptions). For multi-item dimensions (e.g., cohesion, satisfaction), average of available items was used as the mean dimension score in each case, and missing responses for single-item measures (e.g., role nominations) were deleted pairwise (Enders, 2010).

The descriptive results indicated that each team had approximately one individual who was nominated by 50% or more of his/her teammates as a role occupant for each positive role (ranged from 0.94 to 1.50 per team). Individuals obtaining 50% or more teammate-nominations as a negative role occupant were rarer (ranged from 0.19 to 0.25 per team) (See Supplemental Material 3 for details). The bivariate correlations among percentages of received teammate-nominations across roles are provided in Supplemental Material 4.

### **Personality Predicting Informal Role Occupancy**

The inspection of the reliability coefficients revealed acceptable Cronbach's (1951) alphas for the personality scores: .81 (neuroticism), .86 (extraversion), .73 (agreeableness), .66 (openness), and .76 (conscientiousness). The bivariate correlations between athletes' scores on the personality dimensions and the percentages of received teammate-nominations as role occupants are provided in Supplemental Material 5. Multiple regression analyses revealed several statistically significant associations between personality assessed at time 1 and informal role occupancy assessed at time 2 (Table 7)<sup>20</sup>. Only statistically significant results and the

---

TTC#3, and AS-TSC#1, 2 (0.8%) for GI-S#2 and AS-PD#1, 3 (1.3%) for Int-sport and Int-team, and 6 (2.6%) for ATG-S#4.

<sup>20</sup> The independent variables and dependent variables were assumed to be linearly related. The assumptions of independent observation (i.e., all Durbin-Watson statistic values were within the range of 1-3) and multicollinearity (i.e., all tolerance values were above .44) were met (Field, 2018). However, the assumptions of normality of residuals and homoscedasticity were not met in many cases. To address these violations, 95% bootstrap confidence

hypothesized associations (regardless of statistical significance) are reported below. Detailed information including the statistically non-significant results is provided in Supplemental Material 6.

**Comedian (hypothesis 1).** In model 1, extraversion emerged as a statistically significant predictor ( $H_{1a}$ ),  $B = .10$ ,  $t(221) = 5.68$ ,  $p < .001$ , but conscientiousness did not emerge as a statistically significant predictor ( $H_{1b}$ ),  $B = -.06$ ,  $t(221) = -2.56$ ,  $p = .011$ ; Overall model: Adjusted  $R^2 = .14$ ,  $F(2, 221) = 18.41$ ,  $p < .001$ .

**Mentor (hypothesis 2a).** In model 1, neuroticism did not emerge as a statistically significant predictor,  $B = .02$ ,  $t(222) = .97$ ,  $p = .334$ . Overall model: Adjusted  $R^2 < .001$ ,  $F(1, 222) = .94$ ,  $p = .334$ .

**Verbal leader (hypothesis 2b).** In model 1, neuroticism did not emerge as a statistically significant predictor,  $B = .01$ ,  $t(222) = .57$ ,  $p = .568$ ; Overall model: Adjusted  $R^2 < .001$ ,  $F(1, 222) = .33$ ,  $p = .568$ . In model 2, extraversion emerged as a statistically significant predictor,  $B = .06$ ,  $t(218) = 4.16$ ,  $p < .001$ , Overall model: Adjusted  $R^2 = .07$ ,  $F(5, 218) = 4.25$ ,  $p = .001$ .

**Star player (hypothesis 3).** In model 1, agreeableness did not emerge as a statistically significant predictor,  $B = -.04$ ,  $t(222) = -1.35$ ,  $p = .179$ ; Overall model: Adjusted  $R^2 = .004$ ,  $F(1, 222) = 1.82$ ,  $p = .179$ .

**Distracter (hypothesis 4).** In model 1, extraversion ( $H_{4a}$ ),  $B = .04$ ,  $t(221) = 5.06$ ,  $p < .001$ , and conscientiousness ( $H_{4b}$ ),  $B = -.04$ ,  $t(221) = -3.85$ ,  $p < .001$ , emerged as statistically significant predictors; Overall model: Adjusted  $R^2 = .14$ ,  $F(2, 221) = 18.87$ ,  $p < .001$ .

**Social convener.** Extraversion emerged as a statistically significant predictor,  $B = .06$ ,  $t(218) = 3.74$ ,  $p < .001$ ; Overall model: Adjusted  $R^2 = .06$ ,  $F(5, 218) = 3.76$ ,  $p = .003$ .

---

intervals (5,000 samples) of the unstandardized regression coefficients that do not rely on these assumptions were reported in addition to significance testing of the individual predictors (Tables 7 and 9).



**Cancer.** Extraversion,  $B = .03$ ,  $t(218) = 3.89$ ,  $p < .001$ , agreeableness,  $B = -.03$ ,  $t(218) = -3.09$ ,  $p = .002$ , and neuroticism,  $B = .02$ ,  $t(218) = 2.89$ ,  $p = .004$ , emerged as statistically significant predictors; Overall model: Adjusted  $R^2 = .12$ ,  $F(5, 218) = 6.82$ ,  $p < .001$ .

### **Informal Role Occupancy Predicting Outcomes**

The inspection of reliability coefficients revealed acceptable Cronbach's alphas for all outcome dimensions: .67 (ATG-T), .84 (ATG-S), .90 (GI-T), .89 (GI-S), .90 (AS-TP), .93 (AS-TTC), .88 (AS-TSC), .91 (AS-TI), and .83 (AS-PD). The bivariate correlations between the percentage of outgoing nominations for each role (time 2) and the outcome variables (time 3) (i.e., group cohesion, athlete satisfaction, intentions to return) are provided in Table 8. Positive roles generally did not show associations with the outcome variables. Negative roles (i.e., cancer, distracter, malingerer), however, consistently showed statistically significant correlations with the outcome variables, all of which were in the negative direction. See Table 8 for details.

The multiple regressions revealed that athletes' individual perceptions of GI-T, satisfaction with team integration, and satisfaction with personal dedication were predicted by outgoing informal role nominations (Table 9). Only statistically significant results are reported.

**GI-T.** The percentage of outgoing nominations for comedians,  $B = 2.87$ ,  $t(175) = 2.89$ ,  $p = .004$ , and enforcers,  $B = 4.87$ ,  $t(175) = 3.06$ ,  $p = .003$ , emerged as statistically significant predictors; Overall model: Adjusted  $R^2 = .14$ ,  $F(12, 175) = 3.54$ ,  $p < .001$ .

**Satisfaction with team integration.** The percentage of outgoing nominations for verbal leaders emerged as a statistically significant predictor,  $B = -3.19$ ,  $t(175) = -2.88$ ,  $p = .0045$ ; Overall model: Adjusted  $R^2 = .15$ ,  $F(12, 175) = 3.68$ ,  $p < .001$ .

**Satisfaction with personal dedication.** The percentage of outgoing nominations for distracters emerged as a statistically significant predictor,  $B = -3.99$ ,  $t(175) = -3.81$ ,  $p < .001$ ;

Overall model: Adjusted  $R^2 = .12$ ,  $F(12, 175) = 3.14$ ,  $p < .001$ .

## **Discussion**

The current study examined whether athletes' personality assessed at time 1 predicted the degree to which they were identified as occupants of various informal roles at time 2, and whether specific outcome variables (i.e., group cohesion, athlete satisfaction, intentions to return) assessed at time 3 can be predicted by the number of teammates that athletes nominated as informal role occupants at time 2. Data were gathered from 286 intercollegiate athletes from 16 interdependent sport (e.g., ice hockey, soccer) teams over three time points. The descriptive results pertaining to informal role occupancy (0.94 to 1.50 positive role occupants, 0.19 to 0.25 negative role occupants, per team; Supplemental Material 3) closely replicate Kim et al.'s (2018) descriptive findings. These results, in conjunction with the consistency with Kim et al.'s findings, further reinforce the existence of the informal roles identified by Cope et al. (2011).

### **Personality Predicting Informal Role Occupancy**

H<sub>1</sub> and H<sub>4</sub>, which stated that athletes' occupancy of the comedian and distracter roles would be predicted by extraversion (positively) and conscientiousness (negatively), were supported with the exception of H<sub>1b</sub>: Received nominations for the comedian role were not associated with conscientiousness. It appears that those who tend to be more extraverted have the potential to occupy both the comedian and distracter roles, but only those who have additional tendencies to be less conscientious may be viewed as distracting by others. The consistency in the findings with Kim et al. (2018) indicates that these associations are robust and replicable, and the current study that gathered data at multiple time points adds support for directionality of these associations. Further, the current evidence supporting the associations between personality and role occupancy aligns with Kahn et al.'s (1964) role episode model that discussed member

personality as one of the factors that can influence role development processes in groups.

Further, as in the case of Kim et al. (2018), the correlation between the received teammate-nominations as the team comedian and the distracter was the only statistically significant and positive correlation between occupancies of facilitative and debilitating roles ( $r = .41, p < .001$ ; Supplemental Material 4). These results reiterate Kim et al.'s points that the function of these roles (comedian vs. distracter) may be overlapped and more nuanced than originally proposed. For instance, the same behaviours from an athlete may be received as humorous by some athletes in some situations, but as distracting by others (or the same observer) in other situations. In fact, whether a given behaviour is perceived as humorous depends on individual differences (e.g., personality; Galloway & Chirico, 2008) and contextual elements (e.g., group norms; Cooper, 2005). Given that humor has generally been considered a positive element (e.g., a useful coping resource in sports, Dale, 2000), future research may employ other research designs (e.g., qualitative) to examine the functions of these two roles in more depth.

The results involving other roles were inconsistent with Kim et al. (2018). First, H<sub>2</sub> (negative association between neuroticism and both mentor and verbal leader roles) and H<sub>3</sub> (negative association between agreeableness and star player role) were not supported. Second, unexpected associations emerged: Extraversion positively predicted verbal leader, social convener, and cancer role occupancy, and agreeableness (negatively) and neuroticism (positively) predicted cancer role occupancy. Two explanations may help in the interpretations of the inconsistent findings. First, informal role emergence may depend on the interaction of various factors pertaining to the role occupants and the contexts in which the roles emerge. For instance, previous researchers have noted that emergence of leaders and the effectiveness of their behaviours in groups are influenced both by the leaders' traits (e.g., personality dimensions;

Zaccaro, 2007) and organizational contextual factors (e.g., large vs. small groups, composition of member demographic factors; Porter & McLaughlin, 2006). Although this literature was specific to leadership, this theorizing may be adaptable to informal role emergence. This explanation also coincides with theoretical propositions that informal roles arise, in part, in response to the group's existing formal structures (Benson et al., 2016; Hare, 1994). For example, an extraverted athlete may naturally come to occupy team verbal leader or social convener roles (as the current study showed) in a team that lacks formal leadership or opportunities for social bonding, but the emergence of these roles may not occur within teams that already have a strong formal leadership presence and established member relationships. Given the focus on athlete personality as an antecedent of informal role occupancy in the current study and in Kim et al. (2018), future research should examine how other role-occupant related factors (e.g., status, tenure) and contextual elements (e.g., formal role structures, team size) influence informal role emergence.

The second explanation that might help interpret the inconsistent findings between Kim et al. (2018) and the current study pertains to the descriptive differences in role nominations. Though the overall patterns were similar (i.e., 1-2 occupants of each positive role per team), the current study showed slightly lower numbers of role occupants per team (i.e., defined as those who received 50% or more of their teammates' nominations) than Kim et al. for several roles including spark plug (1.06 vs. 1.57), mentor (1.31 vs. 2.29), non-verbal informal leader (0.94 vs. 1.29), verbal informal leader (0.94 vs. 1.36), team player (1.00 vs. 1.36), and social convener (1.25 vs. 1.43) (Supplemental Material 3). In other words, the different findings between Kim et al. and the current study regarding the associations between personality and informal role occupancy may be because the degree to which informal roles existed in the teams differed.

Notably, among the big five dimensions, extraversion was found to be the biggest

contributor to the degree to which athletes were identified as occupants of various positive roles (comedian, verbal leader, social convener). Most of these associations make conceptual sense, as it is reasonable to expect more extraverted athletes (i.e., more sociable, talkative, assertive) to exhibit behaviours related to these roles (e.g., engaging in humorous dialogues, leading the team with verbal commands, organizing social gatherings etc.). It is also possible that extraverted athletes are more likely to garner teammate-nominations as occupants of any given role, regardless of their specific functions, because their actions are inherently more noticeable in comparison to more reserved individuals. Given the current findings on extraversion, examining the more specific facets of extraversion (*Warmth, Gregariousness, Assertiveness, Activity, Excitement-Seeking, Positive Emotions*; McCrae & Costa, 2010) in relation to informal roles may add to the current knowledge base.

Interestingly, teammate-nominations received as team cancers were predicted positively by extraversion and neuroticism, and negatively by agreeableness. The associations with higher neuroticism and lower agreeableness are in line with Cope et al.'s (2010) and Leggat et al.'s (2019) interviews with intercollegiate coaches and athletes, who indicated that team cancers/bad apples were often emotionally immature (i.e., neurotic) and self-centered (i.e., less agreeable). As for the positive association with extraversion, it is possible that among the athletes who are less emotionally mature and more self-centered, only those who outwardly express these tendencies (i.e., more extraverted) are noticed as the team cancer by their teammates, as opposed to those who are more reserved and thus may be less likely to act on their negative emotions. Future research may examine the interaction of these personality variables in relation to the occupancy of the team cancer role.

## **Informal Role Occupancy Predicting Outcomes**

Results regarding the informal roles' influence on the outcome variables of interest revealed interesting patterns. First, the number of outgoing teammate-nominations for the team comedian role positively predicted individual athletes' perceptions of their teams' cohesion toward the achievement of tasks (i.e., GI-T), which was in line with the general expectations. Notably, despite the overlap between occupancies of the comedian and distracter roles found in the current study and in Kim et al. (2018) (i.e., a positive correlation between received nominations as occupants of these two roles), only the comedian role was positively associated with GI-T. This may be explained by Romero and Pescosolido's (2008) proposal that effective use of humor within group settings can lead to greater cohesion. Future research may examine the potential mediators of the relationship between comedians' use of humor and task cohesion (e.g., communication, trust; Romero & Pescosolido, 2008).

The regression analyses revealed a positive prediction of individual perceptions of GI-T based on the enforcer role nominations. This may be interpreted in light of the work by Stuart and Moore (2017), who, based on archival data from the National Hockey League, found that injuries to team enforcers had more debilitating effects on team performance than injuries to other players occupying formal roles. The authors attributed this finding to the possibility that roles operating outside formal boundaries may be more difficult to replace than formal roles because executing such role responsibilities requires the role occupant to have sufficient knowledge and experience within the social context, which may take time to develop. The current result, in combination with Stuart and Moore, provides evidence for the positive influence that team enforcers can have on the overall team functioning. However, given the inherent risks to the enforcer role occupant (e.g., injury) and ethical concerns (e.g., promoting

aggression), the current result must be interpreted with caution.

Contrary to the general expectations, a negative association was found between athlete satisfaction with team integration and the outgoing nominations for verbal leaders. An examination of this association on a scatterplot (Supplemental Material 7) led to a post-hoc hypothesis that this association may involve a non-linear, inverse-U type relationship. In short, athletes who view that their team has one or two verbal leaders may be more satisfied than those who view none, but viewing that there are too many verbal leaders may be detrimental. To test this hypothesis, a post-hoc hierarchical regression was conducted with athletes' degree of satisfaction with team integration as the dependent variable, the percentage of outgoing nominations for verbal leaders entered in model 1, and its squared term entered in model 2. The hypothesis was supported: Model 2 was statistically significant, Adjusted  $R^2 = .03$ ,  $F(2, 197) = 4.08$ ,  $p = .018$ , and had statistically significant improvements over model 1,  $\Delta R^2 = .02$ ,  $\Delta F(1, 197) = 4.24$ ,  $p = .041$ . In model 2, the outgoing nominations was not a statistically significant predictor,  $B = 2.60$ ,  $t(197) = 1.23$ ,  $p = .221$ , but the squared term was a statistically significant negative predictor,  $B = -10.38$ ,  $t(197) = -2.06$ ,  $p = .041$ , indicating that athlete satisfaction with team integration initially increased, but decreased more sharply, as more verbal leaders were nominated (Supplemental Material 7). This result may imply a "too many cooks in the kitchen" type scenario: Athletes who perceive one or two verbal leaders are more satisfied with the degree to which their team is integrated, but perceiving that there are many members who attempt to occupy this role may decrease their satisfaction due to potential conflict among the members. Thus, future research may examine if a relationship exists between athletes' perceptions of the number of verbal leaders on the team and intra-team conflict (Paradis, Carron, & Martin, 2014).

In line with the general expectations, the outgoing nominations for team distracters

negatively predicted athletes' satisfaction with personal dedication. It is possible that the presence of these individuals diverts attention away from important task-related endeavors (by definition of team distracters), which hinders athletes' ability to maximize their efforts during training and competitions. Alternatively, athletes may perceive these distracters as less motivated/committed, which may decrease their own efforts/commitment (e.g., Spink, Crozier, & Robinson, 2013). Therefore, future research could benefit from testing whether the presence of distracters reduces athletes' efforts and, if so, subsequently investigating coaching/managerial strategies that can help mitigate such influences.

Interestingly, there appeared to be a discrepancy in the results between the bivariate correlations and the regressions. That is, the bivariate correlations showed that the percentages of outgoing nominations for cancer, distracter, and malingerer roles were negatively associated with several outcome dimensions (Table 8), though these roles did not emerge as significant predictors in most regression analyses (with the exception of the distracter role noted above) (Table 9). For example, the percentage of outgoing nominations for cancers was negatively correlated ( $p < .01$ ) with all dimensions of cohesion, satisfaction with team integration and personal dedication, and intentions to return to sport and to the team, but it did not emerge as a significant predictor for any of the outcomes in the regression analyses. Considering this discrepancy, the null results in regressions may be a statistical artifact caused by entering all 12 informal roles as predictors into the regression model. In fact, descriptive statistics showed that the average percentages of outgoing nominations for negative roles were lower and less variable (ranged from 4.0% to 4.5% of teammates, with standard deviations ranging from 5.6% to 6.3%) than positive roles (ranged from 9.0% to 14.5% of teammates, with standard deviations ranging from 7.3% to 14.7%; Supplemental Material 8). Thus, it is possible that the predictive power of



the negative roles was statistically diminished as a result of the variance in the outcomes being explained by the positive roles with greater variability in the outgoing nominations. As such, future studies may consider using the current results to establish and test specific a-priori hypotheses and separate the influence of each informal role in their analyses.

The current results supporting the associations between informal roles and specific outcomes may also have important ramifications for personality research within group contexts. That is, organizational psychology has consistently found that the members' personality characteristics can relate to group functioning. For instance, meta-analytic work (e.g., Bell, 2007) found that members' extraversion, conscientiousness, and agreeableness have positive associations with group performance. The current results may imply that informal role occupancy is one of the mediational pathways between athlete personality and team functioning. For example, athletes who are less conscientious may occupy the distracter role and have detrimental influences on their team.

## **Limitations**

Though the current study fills gaps in the understudied area of informal role dynamics, some limitations must be addressed. First, given the exploratory nature of the study, a large number of statistical tests were conducted (i.e., 12 multiple regressions for testing the relationship between personality and role occupancy, 11 multiple regressions for assessing informal roles' influence on outcomes). Thus, Šidák (1967) corrections were used to adjust the alpha level to control for the probability of committing a Type I error. Future research should utilize the current study to test a-priori hypotheses regarding selected variables in relation to informal roles. Second, informal role occupancies were assessed by asking athletes to nominate their teammates, which essentially forces the responses to be binary (i.e., "yes/no" answer to

indicate teammates' role occupancy). Future research may consider using a Likert-type scale (i.e., asking athletes to rate the degree to which each teammate engages in role-related behaviours), as teammates' role behaviours may have varying degrees of influence on their teammates (e.g., one deviant member may have a disproportionately negative influence on the team; Bell, 2007; Prewett, Walvoord, Stilson, Rossi, & Brannick, 2009). Third, it is possible that the process of asking athletes to explicitly report informal role occupants on their team influenced the team dynamics by making the informal role structures more static/formalized. However, given informal roles are expected to arise as a result of member interactions, this process was necessary to gauge the degree to which various informal roles existed on sport teams. Fourth, although athletes' outcome perceptions (e.g., cohesion) are likely nested within their teams, the small sample size at the team level (i.e., 16 teams) in the current study was not sufficient to adequately approach our analyses via multilevel modeling (Maas & Hox, 2005). An alternative option to multilevel modeling that can help account for the nested data structure was creating team membership variables and entering them as covariates in the regression models. However, this approach was not adopted because it would have resulted in a substantial increase in the probability of Type II errors, given that (1) the multiple regressions models for predicting outcome perceptions were already crowded with 12 independent variables (i.e., outgoing nominations for 12 informal roles) and (2) more conservative criterion was used for establishing statistical significance. Future research examining the impact of informal roles should account for team dependence in athletes' outcome perceptions.

### **Conclusion**

The current study investigated whether athlete personality can predict informal role occupancy, as well as whether informal roles within sport teams influence specific outcome

variables: group cohesion, athlete satisfaction, and intentions to return. A-priori hypotheses were introduced based on a previous investigation of personality in relation to informal roles. The findings indicated that occupancy of team comedian and distracter roles can be reliably predicted by athletes' personality, providing support for the importance of personality characteristics in role development processes in group settings as described by the role episode model (Kahn et al., 1964). However, other findings were inconsistent with the a-priori hypotheses, necessitating a replication of these associations as well as an investigation into various contextual elements that may influence informal role dynamics. The main strength of the current study was that data were collected at multiple time points, which provided an indication of directionality between personality and informal role occupancy, as well as between informal roles and outcome variables. In addition, to the authors' knowledge, the current study provided the first set of quantitative evidence that demonstrated how informal roles can predict specific outcome variables in sport settings. Given the empirical support for the significance of informal roles, it is important to continue to investigate the various factors that relate to informal role emergence, as well as the processes by which they can influence group functioning. Such knowledge will add to the understanding of the complex nature of group dynamics and ultimately contribute to creating effective role structures within sport teams.

## **Transition Statement**

Projects One and Two provided empirical support that athlete personality can reliably and consistently predict the degree to which athletes come to occupy the team comedian (higher extraversion) and distracter (lower conscientiousness) roles. However, several inconsistent associations between personality and informal role occupancy across the two projects indicate that informal roles likely arise through more nuanced mechanisms. This line of thinking is aligned with theoretical propositions that suggested informal roles arise as a result of an interplay between athletes' personal characteristics and their behavioural interactions with their teammates (Benson et al., 2016). Thus, it is necessary to take a more holistic approach in order to examine athletes' personal characteristics, behaviours, and other contextual factors that can influence the emergence of informal roles. Thus, Project Three employed an instrumental case study design and utilized questionnaires, behavioural coding, and qualitative interviews to garner further insight that can complement the quantitative findings of Projects One and Two.

## References

- Allen, M. S., Greenlees, L., & Jones, M. (2013). Personality in sport: A comprehensive review. *International Review of Sport and Exercise Psychology*, 6, 184-208.  
doi:10.1080/1750984X.2013.769614
- Bell, S. T. (2007). Deep-level composition variables as predictors of team performance: A meta-analysis. *Journal of Applied Psychology*, 92, 595-615. doi:10.1037/0021-9010.92.3.595
- Benson, A. J., Surya, M., & Eys, M. (2016). The dynamic management of athletes' role expectations. In P. A. Davis (Ed.), *The psychology of effective coaching and management* (pp. 203-216). New York: Nova Science Publishers, Inc.
- Carron, A. V., & Eys, M. A. (2012). *Group dynamics in sport* (4<sup>th</sup> ed.). Morgantown, WV: Fitness Information Technology.
- Carron, A. V., Widmeyer, W. N., & Brawley, L. R. (1985). The development of an instrument to assess cohesion in sport teams: The Group Environment Questionnaire. *Journal of Sport and Exercise Psychology*, 7, 244-266. doi:10.1123/jsp.7.3.244
- Cooper, C. D. (2005). Just joking around? Employee humor expression as an ingratiation behaviour. *Academy of Management Review*, 30, 765-776.  
doi:10.5465/amr.2005.18378877
- Cope, C. J., Eys, M. A., Beauchamp, M. R., Schinke, R. J., & Bosselut, G. (2011). Informal roles in sport teams. *International Journal of Sport and Exercise Psychology*, 9, 19-30.  
doi:10.1080/1612197X.2011.563124
- Cope, C. J., Eys, M. A., Schinke, R. J., & Bosselut, G. (2010). Coaches' perspectives of a negative informal role: The 'cancer' within sport teams. *Journal of Applied Sport Psychology*, 22, 420-436. doi:10.1080/10413200.2010.495327

- Cotterill, S. T., & Fransen, K. (2016). Athlete leadership in sport teams: Current understanding and future directions. *International Review of Sport and Exercise Psychology*, 9, 116-133. doi:10.1080/1750984X.2015.1124443
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297-334. doi:10.1007/BF02310555
- Dale, G. A. (2000). Distractions and coping strategies of elite decathletes during their most memorable performances. *The Sport Psychologist*, 14, 17-41. doi:10.1123/tsp.14.1.17
- Enders, C. K. (2010). *Applied missing data analysis*. New York: The Guilford Press.
- Evans, C. R., & Dion, K. L. (1991). Group cohesion and performance: A meta-analysis. *Small Group Research*, 22, 175-186. doi:10.1177/1046496491222002
- Eys, M. A., Schinke, R. J., Surya, M., & Benson, A. J. (2014). Role perceptions in sport groups. In M. R. Beauchamp & M. A. Eys (Eds.), *Group dynamics in exercise and sport psychology* (2<sup>nd</sup> ed., pp. 131-146). New York: Routledge.
- Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5<sup>th</sup> ed). London, Sage.
- Galloway, G., & Chirico, D. (2008). Personality and humor appreciation: Evidence of an association between trait neuroticism and preferences for structural features of humor. *Humor*, 21, 129-142. doi:10.1515/HUMOR.2008.006
- Hancock, J. I., Allen, D. G., Bosco, F. A., McDaniel, K. R., & Pierce, C. A. (2013). Meta-analytic review of employee turnover as a predictor of firm performance. *Journal of Management*, 39, 573-603. doi:10.1177/0149206311424943
- Hare, A. P. (1994). Types of roles in small groups: A bit of history and a current perspective. *Small Group Research*, 25, 433-448.

- John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative big five trait taxonomy. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (3<sup>rd</sup> ed., pp. 114-158). New York: The Guilford Press.
- Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A. (1964). *Organizational stress: Studies in role conflict and ambiguity*. New York: Wiley.
- Kim, J., Gardant, D., Bosselut, G., & Eys, M. (2018). Athlete personality characteristics and informal role occupancy in interdependent sport teams. *Psychology of Sport and Exercise*, 39, 193-203. doi:10.1016/j.psychsport.2018.07.011
- Leggat, F. J., Smith, M. J., & Figgins, S. G. (2019). Talented but disruptive: An exploration of problematic players in sports teams. *Journal of Applied Sport Psychology*. Advance online publication. doi:10.1080/10413200.2018.1549621
- Maas, C. J. M., & Hox, J. J. (2005). Sufficient sample sizes for multilevel modeling. *Methodology*, 1, 86-92. doi:10.1027/1614-1881.1.3.86
- McCrae, R. R., & Costa, P. T. (2010). *NEO inventories: Professional manual*. Lutz, FL: Psychological Assessment Resources.
- Paradis, K., Carron, A. V., & Martin, L. (2014). Development and validation of an inventory to assess conflict in sport teams: The Group Conflict Questionnaire. *Journal of Sports Sciences*, 32, 1966-1978. doi:10.1080/02640414.2014.970220
- Prewett, M. S., Walvoord, A. A. G., Stilson, F. R. B., Rossi, M. E., & Brannick, M. T. (2009). The team personality-team performance relationship revisited: The impact of criterion choice, pattern of workflow, and method of aggregation. *Human Performance*, 22, 273-296. doi:10.1080/08959280903120253

- Porter, L. W., & McLaughlin, G. B. (2006). Leadership and the organizational context: Like the weather? *The Leadership Quarterly*, 17, 559-576. doi:10.1016/j.leaqua.2006.10.002
- Riemer, H. A., & Chelladurai, P. (1998). Development of the Athlete Satisfaction Questionnaire (ASQ). *Journal of Sport and Exercise Psychology*, 20, 127-156. doi:10.1123/jsep.20.2.127
- Romero, E., & Pescosolido, A. (2008). Humor and group effectiveness. *Human Relations*, 61, 395-418. doi:10.1177/0018726708088999
- Shaw, M. E. (1981). *Group dynamics: The psychology of small group behaviour* (3<sup>rd</sup> ed.). New York: McGraw-Hill.
- Šidák, Z. (1967). Rectangular confidence regions for the means of multivariate normal distributions. *Journal of the American Statistical Association*, 62, 626-633. doi:10.1080/01621459.1967.10482935
- Spink, K. S. (1995). Cohesion and intention to participate of female sport team athletes. *Journal of Sport and Exercise Psychology*, 17, 416-427. doi:10.1123/jsep.17.4.416
- Spink, K. S., Crozier, A. J., & Robinson, B. (2013). Examining the relationship between descriptive norms and perceived effort in adolescent athletes: Effects of different reference groups. *Psychology of Sport and Exercise*, 14, 813-818. doi:10.1016/j.psychsport.2013.06.006
- Stuart, H. C., & Moore, C. (2017). Shady characteristics: The implications of illicit organizational roles for resilient team performance. *Academy of Management Journal*, 60, 1963-1985. doi:10.5465/amj.2014.0512
- Zaccaro, S. J. (2007). Trait-based perspectives of leadership. *American Psychologist*, 62, 6-16. doi:10.1037/0003-066X.62.1.6



### **PROJECT THREE: THE DYNAMICS OF INFORMAL ROLE DEVELOPMENT**

#### **WITHIN SPORT TEAMS: A CASE STUDY APPROACH**

For sport teams to function effectively, individual members must understand and execute their role responsibilities (Carron & Eys, 2012). Roles, defined as the set of behavioural expectations for each group member (Biddle & Thomas, 1966), contribute to a group's structure and help harmonize the members' individual efforts for achieving collective outcomes. In prototypical sport teams, the head coach is the main decision maker (often with the help of assistant coaches), and athletes' roles often pertain to their positions in play (e.g., offensive vs. defensive responsibilities; Beauchamp, Bray, Eys, & Carron, 2002), and/or leadership responsibilities (e.g., team captain; Cotterill & Fransen, 2016).

Importantly, athletes' roles in these contexts (e.g., offense vs. defense, captainship) often have explicit boundaries and are *formally* prescribed by the coach, which informed most of the previous literature in this area (Eys, Schinke, Surya, & Benson, 2014). This body of research used the Role Episode Model as the conceptual framework, which asserts that formal roles are transmitted via iterative processes between the leader/coach, who assigns responsibilities, and the follower/athlete who responds by executing (or failing to execute) the responsibilities (Eys, Carron, Beauchamp, & Bray, 2005; Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964).

In addition to formal roles, there are various roles that emerge more naturally in sport teams without the coach's explicit prescriptions; namely, *informal* roles (Benson, Surya, & Eys, 2016; Cope, Eys, Beauchamp, Schinke, & Bosselut, 2011). Cope and colleagues (2011), via a content analysis of *Sports Illustrated* magazines ( $N = 448$ ) and follow-up verification surveys with competitive team sport athletes ( $N = 101$ ), identified a list of nine positive and three negative informal roles that are relevant in sport teams. Positive informal roles included team

*comedians* (i.e., those who consistently use humor), *spark plugs* (i.e., those who motivate teammates toward group goals), *enforcers* (i.e., those who are trusted to assert their physical presence and protect teammates when the opposing team uses aggressive tactics), *mentors* (i.e., those who provide guidance for teammates), *non-verbal informal leaders* (i.e., those who leads the team with exceptional work ethic), *verbal informal leaders* (i.e., those who lead teammates via verbal commands), *team players* (i.e., those who put the team's collective interests before their own), *star players* (i.e., those who stand out with distinguished task abilities/talents), and *social conveners* (i.e., those who organize social gatherings). Negative informal roles included *team cancers/bad apples* (i.e., those who spread negativity to others), *distracters* (i.e., those who disturb teammates' focus), and *malingers* (i.e., those who complain about/prolong injuries for benefits such as sympathy and access to treatments).

Given the potential impact that informal roles can have, recent literature investigated the antecedents of informal role emergence. Kim and colleagues (Kim, Gardant, Bosselut, & Eys, 2018; Kim, Godfrey, & Eys, in press) conducted a series of studies that focused specifically on athletes' personality. Their studies were grounded within the five-factor model (John, Naumann, & Soto, 2008) that asserts five global dimensions of personality: *extraversion* (i.e., sociability), *agreeableness* (i.e., willingness to cooperate with and help others), *conscientiousness* (i.e., dependability, diligence), *openness to experience* (i.e., preference for novelty over habit/routine), and *neuroticism* (i.e., emotional instability). Across the two studies, it was demonstrated that those who occupied the comedian role (determined via self-identification and teammate-nominations) tended to report higher extraversion, and those who occupied the distracter role tended to be less conscientious (Kim et al., 2018, in press). The consistency between the two studies reinforced the robustness of these associations, and highlighted that athlete personality

can play an important part in informal role emergence.

Inconsistent findings were also noted between the two studies (Kim et al., 2018; in press). First, Kim et al. (2018) found that those who were viewed as team mentors and verbal leaders tended to report lower neuroticism, whereas team star players tended to be less agreeable. However, these associations were not found by Kim et al. (in press). Conversely, Kim et al. (in press) found that verbal leaders and social conveners tended to be more extraverted, and team cancers demonstrated higher extraversion, neuroticism, and lower agreeableness, findings not supported by Kim et al. (2018). In interpreting the inconsistencies, Kim et al. (in press) suggested that informal role emergence may involve a complex interaction of athlete personality and other external factors. For instance, leadership literature has provided evidence that the emergence and effectiveness of leaders depend both on the leaders' traits (e.g., personality; Zaccaro, 2007) and contextual elements (e.g., member composition; Porter & McLaughlin, 2006). This line of thinking also aligns with previous scholars' assertion that informal roles can arise in response to the group's existing structures (e.g., Benson et al., 2016; Hare, 1994). As an illustrative example, an extraverted athlete may emerge as a verbal leader (cf. Kim et al., in press) only when the team lacks strong formal leadership. Such contextual nuances are difficult to uncover based on statistical predictions. Thus, there is a need to consider the use of more in-depth approaches that utilize both qualitative and quantitative methods to examine the processes by which informal roles emerge.

To date, there have been a few studies that considered informal role emergence based on such in-depth approaches. Carreau, Bosselut, Ritchie, Heuzé, and Arppe (2016) targeted a group undertaking a 13-day canoe expedition, and collected data via observations, unstructured interviews during the expedition, and focus groups following the end of the expedition. Their

results suggested that member personality was one of the factors that contributed to informal role emergence, though factors related to other members (e.g., expectations) as well as situational elements (e.g., group composition) also influenced informal role emergence. One example highlighted by Carreau et al. was that the presence of an autocratic leader led to the emergence of informal leaders with more democratic styles. In addition, Cope, Eys, Schinke, and Bosselut (2010), as well as Leggat, Smith, and Figgins (2019), investigated the nature of the team cancer/bad apple role within sport team contexts based on qualitative interviews. The participants across the two studies discussed that narcissistic tendencies (i.e., inflated sense of talent, self-centered attitude) were common among team cancers/bad apples, though other external factors also contributed to their emergence (e.g., coaches' lack of disciplinary responses). Overall, these studies serve as good examples of in-depth examinations that provided rich details regarding informal role emergence.

However, the generalizability of the findings from the aforementioned studies should be considered in light of a few limitations. Pertinent to Carreau et al. (2016), there are several contextual differences between a canoe expedition group and sport teams. Sport teams typically last longer than 13 days, have collective task-related goals (i.e., winning a competition) against well-defined outgroups, and have members whose age range is considerably smaller than the canoe expedition group (i.e., members ranged from 21 to 69 years of age). Also, sport team environments inevitably cause in-group competitions among members who attempt to achieve higher status and receive more playing time. Though it is possible that the informal role emergence processes share some similarities across the two contexts, these differences suggest that there may be factors that influence informal role emergence that are unique to sport teams. As it pertains to Cope et al. (2010) and Leggat et al. (2019), which were conducted within sport

contexts, these studies invariably focused on only one informal role. Thus, further work investigating the nature of informal roles in sport contexts is warranted.

The purpose of the current study was to identify the key factors involved in informal role emergence based on an examination of selected sport teams and their members in detail. Specifically, the current study used a combination of quantitative and qualitative methods to help uncover the processes by which informal roles arise within the examined sport teams. The anticipated findings were expected to complement previous research that to date is limited to assessing athlete personality solely (i.e., quantitative) or only a subset of informal roles (i.e., qualitative), and provide useful knowledge for coaches and athletes who wish to promote positive role structures in their teams. Based on previous empirical evidence and propositions, the current study focused on athletes' individual characteristics, behaviours, and contextual elements in relation to the processes by which informal roles emerge.

## **Methods**

### **Design and Philosophical Paradigm**

The current study employed an instrumental multiple case study design, and was guided by critical realism (Bhaskar, 2008; Wiltshire, 2018). Critical realists attempt to achieve a balance between two broad philosophical paradigms that adopt different ontological (i.e., nature of reality) and epistemological (i.e., nature of knowledge) assumptions: positivism and constructivism (Denzin & Lincoln, 2017). On one hand, positivists believe in a universal reality independent of human experience (i.e., ontological realism), and thus consider empirical findings as true reflections of the reality (i.e., objectivist epistemology). As such, positivists use methods that can minimize subjectivity, such as verifying hypotheses based on quantitative data gathered via controlled experiments. On the other hand, constructivists believe in multiple realities that

reflect the diverse perspectives/experiences of humans in local contexts (i.e., ontological relativism), and thus embrace subjectivity and aim to co-create findings with the participants (i.e., subjectivist epistemology). Thus, constructivists typically rely on qualitative data to examine contextual nuances of the phenomenon of interest (e.g., interviews, observations).

For both positivism and constructivism, ontological and epistemological assumptions are fundamentally bound together. However, critical realism disconnects this binding by adopting a stratified view of reality into three domains: *real*, *actual*, and *empirical* (Bhaskar, 2008; Wiltshire, 2018): The real domain includes the underlying mechanisms that give rise to a given phenomenon of interest (e.g., athlete A has higher extraversion), the actual domain represents the phenomenon itself (e.g., athlete A emerges as the team comedian), and the empirical domain pertains to the interpretation/experience of the phenomenon by humans (e.g., the researcher examines athlete A's role as the comedian). Critical realists reject the idea of multiple realities (i.e., ontologically realist), but recognize that researchers' examination of the phenomenon is inevitably influenced by imperfect methods and subjectivity (i.e., epistemological relativism). This separation of ontology and epistemology can help enhance the impact of research as it allows researchers to examine the causal nature of complex, real-world problems based on diverse methods (Wiltshire, 2018). Pertinent to the current study, informal roles are purported to arise as a result of an interaction of various factors pertaining to the role occupant(s) and other contextual elements (Benson et al., 2016; Hare, 1994). Accordingly, the current case study aimed to provide insight regarding the mechanisms by which various informal roles arise within sport contexts based on multiple sources of information.

## **The Case**

The current study included two cases: one female and one male basketball team that

competed in the U Sports league (i.e., national governing body of Canadian intercollegiate sports). Across the two teams, there were 29 players ( $M_{age} = 19.89$ ,  $SD = 1.81$ )<sup>21</sup>. The tenure of the 29 players were: nine first year, eleven second year, six third year, and two fourth or fifth year athletes (one athlete did not report tenure). As for playing status, ten players self-identified as regular starters, eight identified as regular substitutes, seven reported that they were dressed for competitions but typically did not participate, two self-reported as practice players, and two did not report their playing status. Two players dropped out in the middle of the season and thus were excluded from analysis.

### **Data Collection and Preparation**

Upon approval from the institutional Research Ethics Board (Appendix N), coaches were contacted and recruited via emails. The principal investigator then visited a team meeting where he introduced the study and gained informed consent (Appendix O) from the athletes. Yin (2014) recommended that case studies collect various sources of information in order to avoid potential biases that any single source of evidence may have, and to enhance the scientific rigor of the findings. As such, the current study collected three types of information. First, given the previous work on athlete personality in relation to informal roles (Kim et al., 2018, in press), athletes' personality and informal role occupancy were assessed based on pen-and-paper questionnaires. Second, given previous scholars' emphasis on behavioural interactions in relation to informal role emergence (Benson et al., 2016), video-recordings of competitions were gathered to examine athletes' in-game behaviours. Finally, semi-structured individual interviews were conducted following the end of the season to gather the coaches' and athletes' perspectives on

---

<sup>21</sup> Given the small number of teams, and that the results/discussion include information regarding negative informal roles, detailed information pertaining to each team (e.g., roster size, status and tenure of each athlete) is not provided to ensure anonymity.

informal role emergence (See Appendix P for the informed consent form for the interview participants).

**Questionnaires.** Questionnaire-based data were collected at four time points throughout the season, with approximately 1-2 months of separation between each time point. Near the beginning of the season (time 1), the athletes filled out a demographic questionnaire (e.g., age, tenure, status; Appendix F) and the Big Five Inventory (BFI; John et al., 2008; Appendix J). The BFI is a 44-item instrument that assesses athletes' personality tendencies in the big five dimensions (i.e., 8 items for extraversion, 9 items for agreeableness, 9 items for conscientiousness, 10 items for openness, 8 items for neuroticism). At times 2, 3, and 4, the athletes were provided with a list and descriptions of the 12 informal roles identified by Cope et al. (2011), and were asked to nominate the teammate(s) who occupied each role. They were allowed to nominate more than one teammate for each role, as well as a given athlete for multiple roles (Appendix G).

**Video-recordings.** An hour footage of a regular season game for each team was video-recorded with two cameras: one focusing on the bench and the other capturing the whole playing surface. Athletes' in-game behaviours were coded with the Datavyu (v1.4.1) software using an adapted version of the Athlete Behaviour Coding System within basketball contexts (ABCS; Vierimaa, Bruner, & Côté, 2018). Based on this coding system, athletes' prosocial (verbal and non-verbal) and sport-related (verbal and non-verbal) communication that occurred on and off the playing surface were coded. Because athletes spent different amounts of time on vs. off the playing surface, the frequencies<sup>22</sup> per minute were computed for each type of behaviour within

---

<sup>22</sup> The coding process also recorded behaviour durations. However, the results based on the durations were largely similar to those based on frequencies. As such, the current study focused solely on the frequencies for simplicity.



each context separately<sup>23</sup> (See Table 10 for the descriptions of the categories of coded behaviours).

**Coder reliability.** An independent coder was hired to aid the principal investigator with the coding. Rigorous steps were taken to enhance the consistency between the pair of coders. First, the pair reviewed the coding system in detail together and engaged in several rounds of test coding, which involved selecting and coding random 10-minute segments of the video footages independently and comparing their performance. Throughout these processes, the coders clarified inconsistencies and made minor revisions to the coding system to enhance consistency. Once no new issues arose, a reliability testing was conducted to ensure the pair reached at least 75% inter-coder agreement within a random 10-minute video segment (cf. Vierimaa & Côté, 2016). Once this threshold was reached, each coder was assigned one of the two games to code.

**Interviews.** Following the end of the competitive season, coaches and athletes were invited to participate in individual interviews to share their perspectives on informal role emergence in their teams. One team declined to participate. From the other team, the head coach (two to four years of head coaching experience; denoted as C1), the lead assistant coach (two to four years of assistant coaching experience; denoted as C2)<sup>24</sup>, and three athletes (tenure equal to 1, 3, and 5 years on the team; denoted as A1, A2, and A3, respectively) agreed to participate. The interviews were in a semi-structured format and were supported by an interview guide, which consisted of three main sections (Appendix R). First, an introductory question asked the interviewees to comment on the various roles that emerged without formal prescriptions and provide behavioural examples. The second section included key questions that pertained to the

---

<sup>23</sup> For those who spent minimal time (e.g., < 5 minutes) within either one of the two contexts (on vs. off-court), behaviour frequencies in that context were not computed.

<sup>24</sup> See Appendix Q for the Coach Demographic Questionnaire.

factors/processes involved in informal role emergence. The third and final section included a concluding question that probed them to comment on any aspect of informal roles that they felt were not discussed. The interviews were audio-recorded and transcribed verbatim for analysis.

## **Data Analysis**

Given the in-depth nature of the study, all sources of data were examined collectively in a descriptive manner. First, to assess athletes' informal role occupancy, the percentages of received teammate-nominations were computed at each time point for each role. For example, if an athlete had 20 teammates and received 10 nominations as the team's comedian at time 2, the percentage of received teammate-nominations for this athlete for the comedian role at time 2 was 50%. Previous research in this area determined athletes' informal role occupancy based on majority agreement among the teammates (50% or more of nominations required to be classified as "informal role occupant"; Kim et al., 2018, in press). However, a limitation of this approach is that those who serve meaningful informal role-related functions but do not reach the 50% agreement (e.g., being nominated by 45% of teammates) are categorized as a "non-role occupant". Given that the purpose of the study was to conduct an in-depth examination of informal roles, the patterns of athletes' percentages of received teammate-nominations at three time points, as well as the mean values across the three time points, were represented in bar graphs and were explored descriptively (Supplemental Materials 1-12). Those who received noticeably more teammate nominations were subjectively determined as the occupants of each informal role. As an illustrative example, examining the bar graph representing each athlete's received teammate nominations as the team's comedian (Supplemental Material 1) revealed that P12 and P27 were nominated by the majority of their teammates (above 75%), and also that P4, P10, P13, and P20 received nominations from considerable proportions of their teammates. Thus,

these six athletes were determined as the team comedians.

Then, a role profile was created for each athlete, which contained his/her demographic information (e.g., tenure, status, age), percentages of received role nominations (only for those who occupied at least one informal role), mean personality scores in the big five dimensions, and behaviour frequencies. In addition, mean personality scores and mean behaviour frequencies of all other teammates were also included in each athlete's profile for comparison. These profiles were then examined descriptively to organize the athletes into role categories based on similarities in terms of informal role occupancy. Subsequently, the patterns/commonalities in demographics, personality, and behaviour frequencies were explored within each role category<sup>25</sup>.

Specifically, the role categories put forth by Bales (1966) were used to organize athletes with similar informal role profiles. Bales observed the interpersonal interactions within problem-solving groups of five members and noted that members' behaviours could be considered via the degree of *activity*, *task ability*, or *likeability*. These three domains were adapted to sport settings by Carron and Eys (2012): The activity aspect pertains to behaviours that allow one to stand out among the members (e.g., speaking up in the locker room), the task ability aspect pertains to behaviours targeted to promoting task achievement (e.g., performance), and the likeability aspect pertains to behaviours aiming to enhance social harmony within the team. Bales asserted that the degree to which members engage in each type of behaviour can influence the type of roles they come to occupy, and identified common role categories including "*Task specialists*" (i.e., those who show competence and engage actively in task achievement, but demonstrate lower likeability), "*Social specialists*" (i.e., those who are active and likeable but demonstrate lower

---

<sup>25</sup> In order to avoid compromising the participants' anonymity, the actual role profiles of the athletes that include detailed information regarding their demographics are not provided. For interested readers, an example of a role profile is provided in the supplemental file (Supplemental Material 13).

task ability), “*Great people*” (i.e., those who actively serve both task and social functions), as well as “*Deviants*” (i.e., those who are low on activity, task ability, and likeability). Similarly, Benson, Surya, and Eys (2014) suggested that sport teams typically have individuals who occupy *task* roles that may be specialized (e.g., performance on the playing surface) or auxiliary (e.g., encouraging teammates), *social* roles (e.g., organizing gatherings), or *leadership* roles (e.g., serving both task and social functions in relation to group functioning).

Taken together, the role categories put forth by Bales (1966), which also garnered empirical support for their relevance within the sport contexts (Benson et al., 2014), served as the basis for examining the informal role structures within the current study. Specifically, “task specialists” were defined as individuals who occupied one or more task-related informal role (spark plug, enforcer, mentor, nonverbal leader, verbal leader) without occupying social-related (comedian, social convener) or negative (cancer, distracter, malingerer) roles. “Social specialists” were defined as those who occupied the comedian and/or social convener roles, without occupying task-related or negative roles. “Great people” were defined as those who occupied at least one task- and one social-oriented roles without occupying negative roles. Lastly, deviants were defined as those who occupied at least one negative informal role, regardless of occupancies of any positive informal roles.

The interview data were thematically analyzed by closely following the six steps described by Braun and Clarke (2006). First, the principal investigator familiarized himself with the data by transcribing the interviews and reading the transcripts multiple times. Second, initial codes were generated by creating concise labels that described the contents of meaningful segments of data. Third, similarities across the codes were examined to create themes. Fourth, the themes were reviewed to ensure that the codes included in each theme matched the central

tenets of the theme. This process also involved combining similar themes to create overarching themes, as well as breaking down a broad theme into several sub-themes to organize them in a coherent structure. Fifth, descriptions of each theme were written and each theme was given a succinct name. Finally, the organized set of themes were translated into a written report.

### **Methodological Integrity**

Several approaches were undertaken to enhance the study's overall quality and rigor. First, as per Yin's (2014) recommendation for case studies, multiple types of data (i.e., questionnaire, video-recordings, interviews) were collected to minimize potential biases from a single source. Gathering multiple types of data also aligns with the critical realist paradigm that encourages methodological plurality to help examine complex real-world phenomena (Wiltshire, 2018). Second, upon completion of the initial analysis of the interview data, two *critical friends* (Smith & McGannon, 2017) offered feedback and suggested alternative interpretation/organization of the themes to promote the authors' self-reflection. These processes led to minor refinements of the thematic scheme. As an example of a refinement, some of the content that was initially included under the *status* sub-theme was moved to a new sub-theme called *tenure* in order to clearly distinguish between athletes' playing time (i.e., status) and time spent on the team (i.e., tenure). A similar process was conducted with a colleague who offered feedback on the organization of the athletes' profiles into role categories. Third, upon completion of the analysis of the interview data, interview participants were invited to engage in *member reflections* (Smith & McGannon, 2017), whereby the summary of the thematic schemes was shared with the participants in order to generate additional insight pertaining to the nature of informal roles. Member reflections were completed over the phone with three participants, who agreed with most of the findings and elaborated on some of the findings. An example of this

elaboration is provided within the Results section.

Finally, the current study aimed to achieve two types of *generalizability* to maximize its impact. First, *naturalistic generalizability* refers to promoting the readers' resonance with the findings, which was enhanced by providing rich contextual details and direct quotes to highlight the central tenets of each theme, as well as the nature of the athletes' role profiles (Smith, 2018). Second, *analytic generalizability* refers to the degree to which the findings can be linked to established concepts/theories, or used to introduce new concepts/theories or modify existing concepts/theories regarding the given phenomenon (Smith, 2018). In order to promote analytic generalizability, the current study adapted the role categories created by previous scholars (e.g., Bales, 1966; Benson et al., 2014) to organize informal role occupants, and the findings were used to relate back to the overall role research in sport but also to introduce several new propositions that may be tested in future research.

## **Results/Discussion**

The details pertaining to the percentages of received role nominations are provided in Supplemental Materials 1-12. The results and the associated interpretations for each type of information collected (questionnaires and behavioural coding, interviews) are provided together for better flow of information. Then, a general discussion section follows, which integrates the results/interpretations across different sources of information to provide overarching reflections pertaining to informal role emergence.

### **Role Profiles**

Athletes were grouped under the various role categories (Bales, 1966) based on similarities in their informal role occupancies. Notable patterns of demographic information,

personality, and activity levels are described below within and across each role category<sup>26</sup>.

Cronbach's (1951) alpha values for the big five personality dimensions were: .90 (extraversion), .84 (agreeableness), .79 (conscientiousness), .78 (neuroticism), and .72 (openness). The results pertaining to personality tendencies are provided in Table 11, and those pertaining to athletes' behaviours are summarized in Table 12.

**Great people.** Seven (25.93%) athletes were classified as the great people (i.e., those who occupied both task- and social-oriented roles, without occupying negative roles). They were at least in their second year as the members of their respective teams, had substantial playing time, and occupied a formal leadership role (captain or assistant captain). They displayed higher extraversion and generally higher levels of activity across prosocial and sport-related behaviours compared to all other individuals who belonged to other role categories. Based on these commonalities, these athletes can be described as the key individuals who actively served important functions for achieving the teams' instrumental objectives and for promoting harmony among team members. As an illustrative quote, a coach (C1) said, "They impacted the culture. They had an amazing work ethic, high maturity, were so funny but so sweet and kind at the same time, they are the people that you are so grateful to have on the team...". Though Bales (1966) indicated that these types of people may be rare in groups, such individuals may be more common within sport as athletes interact with one another in and out of the sport settings more frequently and spend much longer time together in comparison to problem-solving groups observed by Bales.

**Task specialists.** Five (18.52%) athletes were classified as the task specialists (i.e., those who occupied one or more task-oriented role(s), without occupying social-oriented or negative

---

<sup>26</sup> In order to ensure anonymity, participant numbers (P1-P27) are used to describe specific athletes without using gender pronouns.

roles). They were at least in their second year as members of their respective teams, had moderate playing time, and displayed lower extraversion. Among the five, two occupied formal leadership positions. Behaviour frequencies for the task specialists were generally lower, but some of the specific behaviour contents seemed to vary across the individuals. For instance, among the five task specialists, P15 engaged in prosocial behaviours 4.83 times per minute off the court, whereas P11, P17, and P18 did so only 2.08 times on average. Similarly, P23 engaged in sport behaviours 1.13 times per minute on and off the court, whereas the other four task specialists (P11, P15, P17, P18) did so only 0.51 times on average. For those who showed lower activity levels (P11, P17, P18), it is possible that their task role fulfillment was occurring “behind the scenes” outside game contexts. The following quotes illustrate such a task specialist (P17):

A2: P17 did not play a lot, and was never given the role of the leader, but P17 was perceived as the leader of the team... just because P17 knew the skills very well and worked hard... that earned our respect.

C1: P17 is not a player who played a lot but is someone who understands the game. P17 is a very very very smart basketball player... P17 would help [others] with getting prepped for games and stuff... and is pretty much an assistant coach-player at this point.

For the two task specialists who demonstrated higher levels of activity (P15, P23), their behavioural activity was different: P15’s activity pertained to prosocial behaviours, whereas P23’s activity pertained to sport-related communication. This difference can be interpreted in light of the nature of the tasks in which they were engaging. On one hand, P23 occupied a formal leadership role and was one of the main ball handlers on the court, which likely required frequent sport-related communication with teammates to organize the team’s plays/tactics. On the other hand, P15 was described as someone who was a workhorse on and off the court that energized



the team. For example, referring to P15, the assistant coach said the following:

C2: I would call P15 the warrior... P15 may not be the strongest or the fastest, but would be willing to sacrifice for the team, dive for loose balls, get under people's skin on defense... P15 brought mental toughness to the team. When P15 was on the court you could see everyone on the court was like, 'alright, let's dive in'.

Thus, P15's influence as the task specialist may have pertained more to encouraging teammates and promoting their motivation (i.e., prosocial) rather than sport-specific communication. This result relates back to Benson et al. (2014) who indicated that task roles can be specialized (i.e., on-court performance; P23) and auxiliary (i.e., bringing energy; P15).

**Social specialist.** P10 was the sole social specialist (i.e., occupied the comedian and social convener roles only). P10 was a third year player, demonstrated higher extraversion, as well as higher levels of activity, particularly pertaining to sport-related communication. Though the high sport-related activity appears to be at odds with the fact that P10 occupied no task-relevant roles, an interesting pattern of results was that this social specialist demonstrated noticeably lower agreeableness and conscientiousness. That is, despite high levels of activity, P10 may not have been seen as cooperative (i.e., lower agreeableness) or serious/determined (i.e., lower conscientiousness), which may have prevented P10 from occupying important task-oriented roles. Thus, future research may test the interactions of several personality variables in relation to informal role occupancy (cf. Kim et al., in press).

**Deviants.** Two athletes (7.41%) were classified as the deviants: P12 (comedian, social convener, distracter) and P22 (malingerer). Both participants were in their first year as members of their respective teams, received minimal playing time, displayed higher extraversion, and engaged in moderate levels of activity. P12 represents an interesting case whereby the athlete

occupied the distracter role concurrently with the social-oriented roles. This directly aligns with previous studies (Kim et al., 2018, in press) that demonstrated positive correlations between the comedian and distracter role occupancies. A few interpretations may be drawn pertaining to the profile of this athlete. First, given the moderate levels of activity in game contexts, it is likely that P12 was engaging in comedic/social-oriented behaviours frequently outside the competition settings. These behaviours may have signaled P12's lack of focus on the task to the teammates. On a related note, given P12 was a first-year athlete, P12 may not have developed the necessary knowledge regarding the team's norms. Similarly, P22 may have been engaging in malingerer-like behaviours because of the lack of experience/familiarity of the levels of physical and psychological demands associated with participating in intercollegiate level athletics. Overall, the finding that the negative role occupants were both in their first year as team members aligns with Rees and Segal (1984) and Benson et al. (2014) who found that the majority of individuals who served positive role functions were senior members of the team.

**Single role occupants.** There were a few athletes who did not fit in the specific role categories put forward by Bales (1966). In fact, Bales indicated that his categories represent the most common and intuitive types of roles on a group, but other types of individuals can also exist. In the current study, three athletes (11.11%) occupied only the enforcer role: P5, P6, and P22. It is likely that the main contributor of the occupancy of this role was the athletes' physical dominance. In fact, these athletes were among the tallest/biggest players on their respective teams. However, it is also important to note that they garnered meaningful amounts of playing time (17.77 minutes per game) and tended to have higher tenure, as other athletes with similar height and weight who had lower tenure and minimal playing time were not nominated as enforcers. This interpretation was supported by an athlete (A3) who said, "The enforcer is

someone who is a veteran. Very often someone who is accepted as an enforcer is not a first year...Generally the older players are the enforcers, the players who hit hard just because they're stronger...just being dominant.”

Of note, though P25 was classified under “great people” given the concurrent occupancies of the comedian and the star player roles, P25’s informal role occupancy was heavily focused on the star player role as the percentage of received nominations was nearly 100% across the three time points for the star player role, but only about 30% for the comedian role. It is likely that P25’s on-court performance was the main factor for the occupancy of the star player role, as P25 scored a substantial proportion of the team’s points and garnered numerous awards that recognized distinguished performance levels. Overall, the occupancy of a single role appears to be predominantly influenced by one or two main factors: physical dominance and experience for enforcers, and on-court performance for star players.

**No informal roles occupied.** Across both teams, nine (33.33%) individuals occupied no informal roles. They tended to have lower tenure: Six were in their first, and three were in their second, year on their teams. They had minimal playing time and displayed low-moderate activity levels. Interpreting these, it may be difficult for athletes with lower tenure, particularly first-year athletes, to occupy positive informal roles because they likely have not developed the necessary knowledge/comfortability to engage in informal role-related behaviours. In fact, Stuart and Moore (2017) suggested that fulfilling roles outside formal/official boundaries requires the role occupants to have sufficient experience within the context. Also, given their lower tenure and status, it is possible that their behaviours are suppressed by members with higher tenure and status, making it more unlikely for them to serve informal role functions.

## Interviews

The thematic analysis of the interview data identified several factors related to the emergence of various informal roles, which pertained to either the role occupant(s) themselves or contextual elements external to the role occupants.

**Role-occupant related factors.** The majority of participants emphasized that *natural personality* was one of the main causes of informal role occupancy. In particular, extraverted tendencies were mentioned in relation to the social-oriented roles and verbal leadership roles: “Introverts are less likely to fill that role as a comedian, verbal leaders are going to be players who are more extraverted as well.” (A1). In fact, the role profiles demonstrated that the majority of the athletes who occupied these roles (great people, social specialist) displayed higher extraversion (Table 11). The emphasis on extraversion as a precursor to occupying comedian, social convener, and verbal leader roles is consistent with previous quantitative studies (Kim et al., 2018, in press).

On the flip side, an athlete spoke of a teammate whose introverted tendencies suited a spark plug role: “It’s personality. [P15] doesn’t talk too much. It goes with P15’s style, comes in, doesn’t talk much, gives us the fire.” (A2). In line with this perspective, role profiles of task specialists indicated lower extraversion (Table 11). These results indicate that athletes with introverted tendencies can serve important task-related functions on the team. Such interpretation aligns with the theoretical propositions within the member personality composition literature, which suggests that maximizing the within-team heterogeneity of extraversion (i.e., having members with varying degrees of extraversion) can be beneficial for team functioning (e.g., Humphrey, Hollenbeck, Meyer, and Ilgen, 2007).

Finally, though the participants indicated that no teammates occupied the cancer role,

they reflected on their experiences on previous sport teams and discussed that personality also influenced occupying this role: “It’s them being self-centered and thinking very highly of themselves. They think that they know it all already, so they’re not willing to learn and change, ... to bind to the team culture, they’d rather do it their way” (A3). These results reiterate the findings from previous research that found team cancers/bad apples demonstrated narcissistic tendencies and lower agreeableness (i.e., self-centered) across both quantitative (Kim et al., in press) and qualitative (Cope et al., 2010; Leggat et al., 2019) studies.

The majority of the participants agreed that members with higher *tenure* were more likely to occupy informal roles. In particular, informal role development often occurred as members transitioned into the second year of their team experience:

C2: You see that players are quiet when they first come in because when you're a rookie you don't want to step on anyone's toes, you don't want to overstep your boundaries. I think it happens more toward the end of the first year and into the second year.

A3: I think the first-year players tend to be laid back. ... I think second year and on, even at the end of their first year is when you start to identify people’s personality traits... I think most people developed their role after first year.

Similarly, the role profiles indicated that individuals who occupied various positive informal roles were at least in their second year on the team. The emphasis on tenure is consistent with Rees and Segal (1984), as well as Benson et al. (2014), who found that individuals serving important task and/or social functions on sport teams tended to have higher tenure.

In addition to personality and tenure, several other role-occupant related factors were discussed in relation to informal roles. One such factor was the athletes’ *personal background* pertaining to their lives outside athletics (e.g., family dynamics, academic background). As an

example, a coach explained that an athlete's religious background allowed the athlete to express emotions to inspire others and elevate others' motivation as the spark plug:

C1: [P18] doesn't always say much but when [P18] does it's full of passion and emotion. [P18] is a religious person. ... you can tell when people are really religious, you feel spirituality with them... [P18] would be getting teammates fired up before games, doing motivation speeches, things like that in a very emotional way.

Often, high levels of *work ethic* were a requirement for teammates to consider someone as an occupant of positive roles (comedian, spark plug, informal leaders):

C1: They earned and gained respect from the others... Next year [P13] is going to be even higher. [P13] is going to be able to be the comedian and the leader at the same time. They do not conflict because of how much hard work [P13] put in.

Athletes' *experience* within intercollegiate settings was also discussed. Specifically, both previous successes and failures allowed athletes to serve as mentors and informal leaders:

A1: I think being a mentor also comes from experience. Fourth year, fifth year players who are having success on the court and off the court academically can serve as mentors. Sometimes players who have learned from their mistakes can serve as a mentor for the younger players. For example, if someone failed a course for this reason, that person can tell a young player how not to fail that course.

The current results pertaining to various role-occupant related factors (e.g., personal background, work ethic, experience) offer several avenues for future research that can help extend the previous studies (Kim et al., 2018; in press) that focused solely on athletes' big five personality traits. For instance, athletes' emotional intelligence and/or efforts exerted during training may be examined in relation to informal role emergence. In addition, based on the

emphasis on athletes' previous experience, conducting a longitudinal investigation of sport teams that examines the evolution of athletes' informal role profiles over multiple sporting seasons would be highly valuable. Such a study design will allow interesting comparisons between those who achieve success early in their academic and athletic careers vs. those who initially struggle and gradually improve their academic and athletic performance in relation to their informal roles.

**Contextual elements.** The participants indicated that there were factors external to the role occupants that influenced the emergence of informal roles. First, the degree of *comfortability* athletes felt in their team environments allowed them to fill social-oriented roles or the mentor role, as they fit with their personality/preference:

A3: On a basketball team there is a hierarchy. The starters, the role players, and then the players who are redshirts who just practice. Whatever your role is, if you are comfortable in it, ... you will be able to display that outgoing personality that makes people laugh.

C2: They are close together. ... And they are not worried about, "if I give advice to you, you are going to get offended". On other teams I've coached, it's kind of been like, "I don't want to say that....I don't want to create a ruffle on the team and end my friendship", and some players slip through the cracks and get on academic probation.

Here it's a tighter niche. Everyone is friends and they're not afraid to say stuff.

The emphasis on athletes' sense of comfortability is an interesting contradiction to Kim et al.'s (in press) study that found the presence of informal roles predicted team cohesion. In other words, the current results suggest a reversed directionality of this relationship, such that athletes' higher perceptions of team cohesion may help enact their informal-role related behaviours.

*Coach influence* had the potential to facilitate the development of mentor and informal leader roles. Of note, the athletes discussed that their head coach did this by encouraging them to

find informal ways to help the team, instead of formally prescribing specific responsibilities:

A1: At the beginning of the year, we had our individual meetings with the coach and talked about formal roles. And then [coach] also talked about informal roles, about how we think we can impact the team. A lot of times people don't necessarily think about informal roles, right? It was definitely helpful in terms of the players being able to fill certain informal roles. For me, I was consciously thinking about being more of a nonverbal leader, or being more of a mentor to the younger players. I think it definitely helped me fulfill those roles better than opposed to not having that talk.

Reflecting on their experiences on previous teams, athletes indicated that coaches' favouritism led team cancers to emerge. On the flip side, coaches' strong discipline discouraged this process:

A1: I think the coaches have a pretty big impact on how cancerous roles emerge. When I was younger, I've played for coaches who had a strong focus on a few players. ... and were trying to get these players to go to the next level as opposed to focusing on the whole team. ... Those players can become cancerous... Then they come to a team where the coach does not take any of that crap, where if players are putting themselves over the team, they don't play no matter how good they are. ... And then basically they have to make a decision: be in a cancerous role and do nothing, or buy into the team system.

A3: Sometimes for team cancers, they get their place on the team threatened by our coaches. Like, "if you don't stop this, then you'll be cut" kind of a thing. It just discourages them from being a team cancer.

These findings regarding coach influence are novel, as previous scholars focused on athlete personality (e.g., Kim et al., 2018, in press), team structures (e.g., Hare, 1994), and member interactions (e.g., Benson et al., 2016) as the main antecedents of informal roles. The current



results indicate that coaches can directly (e.g., cancer) and indirectly (e.g., mentor) influence informal role emergence, and suggest that coach-related factors (e.g., coach leadership style, athletes' satisfaction with coach) should be examined in relation to informal role emergence.

In addition to the coach's influence, athletes with formal leadership positions (i.e., captain, assistant captain) considered mentorship and nonverbal/verbal leadership functions as part of their formal responsibilities:

A3: For me I was a team captain so I know in that role, part of my job is getting the younger players up to speed and helping them be successful on the court so that they can grow as players and growing off the court so that they can stay in school.

A2: Some other players stepped up being vocal but it was usually our core players that were doing that. I mean they were the designated captains so they by default had to.

The participants discussed that that informal roles arose when there was a *role void* within the team environment. The assistant coach referred to a previous team that he/she coached and described a situation where lower status athletes stepped into the verbal leadership role for which there was a void during the season:

C2: I think some of the players on the sideline saw certain things unfold where the leadership that a coach wanted in his starting players or the best players necessarily didn't happen. So the players who weren't playing as much were able to step up in certain situations because they understood that if no one was going to step up, someone needed to say something. It can't be a coach that needs to say that. And I think a lot of them even off the court took a bigger role than the main core players.

During member reflections, the assistant coach offered a perspective that integrated the *coach influence* and the *role void* themes. That is, the head coach's encouragement of all members to

fill any role voids was effective in promoting positive informal role emergence, whereas directly delegating responsibilities to specific athletes was less effective:

C2: [The head coach] talked to players about roles, but he/she didn't define what they were. He/She was telling them to be better versions of themselves and made them more conscious about the possibility of voids in roles. Other teams that I'd been a part of, ... some coaches would be saying to a veteran player, "I need you to be this leader" ... "I need you to make sure these three people follow your footsteps", which negatively influenced the team because we would be missing out on other key things that we need that person to do because that person would be focusing only on that specific role the coach talked about.

Athletes also attempted to fill role voids that occurred as a result of player turnover from one season to the next:

A1: Last year I was more of a nonverbal leader. I was in X year, worked hard, teammates respected me, but I wasn't a verbal leader. Coming to this year we lost a few fifth-year players, some young players came in. I was going into my next year and I thought I understood the team dynamic, so I emerged more into a verbal leader as opposed to a nonverbal leader because I thought that was the void that had to be filled.

On a related note, the presence of existing informal role occupants discouraged other members from engaging in similar informal role-related behaviours:

A1: There's obviously only room for a certain amount of people in each role. You can't have 12 verbal leaders or 12 comedians on a team. ... Say a player is a verbal leader on a team, and goes to a new team to go to the next level or to transfer. ... and that team already has a player who is a verbal leader. The player won't necessarily reduce the

verbal leadership altogether, but definitely will have tendencies to step back. ... I think it's relatable to most roles. Even the comedic role, some players will step back a little bit. As a final point, *teammate influence* was discussed as a factor that can affect informal role emergence. Upon reflections on previous teams, the athletes discussed how one teammate who occupied the team cancer/bad apple role could lead other members to show similar negative tendencies, particularly when the team cancer had higher status:

A1: If there is a couple of players on the team who are like, "I don't care about the team really, I just care about my numbers", then you have other people on the team that had originally bought into the idea of the team-first suddenly start to question, "Why am I putting the team first if no one else is?"

A3: I think it's important to outline the difference between a cancer versus a liability. People with those [negative] characteristics have the ability to become team cancers if they are starters, or liabilities if they are on the bench. ... Because of the bigger role of a starter, people will follow that and feed off of that, ... someone who does not play as much has less of an influence.

On the contrary, athletes who served as mentors encouraged younger athletes to fulfill positive informal role functions and discouraged them from occupying negative roles:

A1: If you are lacking a mentor or don't have a good mentor, it becomes a lot easier for the younger players to become distractions or cancers on the team, as opposed to having a mentor who can instill better values into them. ... Then it's a lot easier for them to buy into the team culture ... and fulfill more positive informal roles.

The ideas pertaining to role void and teammate influence align with previous scholars who asserted that informal roles can arise to *supplement* (e.g., engaging in verbal leadership to fill

voids) the group's formal structures (e.g., Hare, 1994), and as a result of interactions among teammates (e.g., mentors encouraging others to fulfill positive informal role functions; Benson et al., 2016). These interpretations suggest a few worthwhile directions for future research. First, athletes' perceptions of the existing informal role occupants, and/or their effectiveness in performing informal role functions, may be examined in relation to informal role emergence. Further, given the emphasis on the season-to-season player turnover and teammate influence, comparing informal role structures across two or more sport seasons will provide useful insight.

### **General Discussion**

The current study aimed to identify the key factors involved in informal role emergence, focusing on the role occupants' characteristics, behaviours, and the contexts. The current results based on different types of information can be integrated to identify the key patterns pertaining to informal role emergence. First, the quantitative results (i.e., role categories) indicated that those who occupied positive roles had higher tenure, status, and were more active, in comparison to those who occupied no informal roles. Those occupying social-related roles were more extraverted, whereas those who only occupied task-related roles were less extraverted. The interview results supported these patterns noted in the role profiles (e.g., emphasis on personality, tenure), and further identified various other role-occupant related factors (e.g., experience, work ethic) and contextual elements (e.g., role void) that influence informal role emergence.

Overall, it appears that informal role emergence processes share similarities with the formal role transmission processes described in the Role Episode Model (Kahn et al., 1964). That is, for both formal and informal roles, various factors related to the role occupants and contexts appear to influence the way in which members develop expectations regarding a given

athlete/teammate's roles. Despite such similarities, two important differences should be noted between formal and informal role development processes. First, while formal role expectations are primarily driven by the official leader (i.e., coach), informal roles appear to involve the expectations/appraisals from both coaches and teammates. Second, while athletes passively respond to the coach's expectations in terms of their formal roles (e.g., Eys et al., 2005), athletes may play a more active part in shaping their informal roles.

Based on the results, several specific propositions pertaining to informal role emergence in sport teams are introduced. First, the findings indicated that most positive informal roles appeared to develop as athletes transitioned into their second year on their team, and those who were in their first year on the team either occupied negative informal roles, or no informal roles.

*Proposition 1: Veteran status is a favourable (but not sufficient) condition for occupying positive informal roles.*

*Proposition 2: First-year members who attempt to occupy informal roles are more likely to be perceived by others as less effective at best, and detrimental at worst.*

Those who occupied social-oriented roles (i.e., great people, social specialists) displayed higher extraversion, whereas task specialists displayed lower extraversion.

*Proposition 3: High extraversion is a requirement for serving social-oriented functions, but not a requirement for serving task-oriented functions, within the team.*

Task specialists showed variability in activity levels in game contexts. Among highly active task specialists, their behaviour contents were different (prosocial vs. sport-related communication).

*Proposition 4: Athletes' fulfillment of task-oriented informal roles (e.g., spark plug, informal leader) can occur within game contexts with different functions (e.g., encouraging teammates vs. directing plays), as well as outside game contexts (e.g., pre-*

*game speeches, establishing positive norms during training).*

The results based on the interviews highlighted several contextual factors that can facilitate/discourage informal role emergence.

*Proposition 5: Coaches' general encouragement to positively impact the team can promote the emergence of facilitative informal roles (e.g., acting as a mentor).*

*Proposition 6: Athletes are more likely to engage in informal role-related activities when relevant role functions are not being fulfilled within the team (i.e., filling the void).*

*Proposition 7: Athletes are more likely to engage in informal role-related activities when they perceive the team environment as comfortable and when they are met with favourable responses from other members.*

These propositions are provided as suggestive directions for future research and are not meant to be exhaustive. Thus, future researchers are encouraged to test the specific propositions introduced, and also to use the current study as the basis to further identify various components of the informal role emergence processes within groups.

A few limitations should be noted. First, the analysis of athlete behaviours were conducted within game contexts only due to practical limitations. Given that many informal role functions likely occur outside competition contexts, future research should consider athletes' behaviours and interactions across different contexts (e.g., practice/training, in the locker room). Second, the interviews were conducted with only one team, which limited the scope of examining the other team's dynamics to the survey and behavioural analyses. Thus, the generalizability of the findings based on the interviews should be interpreted with caution. As an attempt to maximize the diversity of perspectives, interviews were conducted with both coaches and athletes, and athletes with varying tenure. Finally, the descriptions of the role profiles and

the direct quotes were provided in a careful manner to protect participant anonymity. This process was challenging and may have diminished the depth of the descriptions of the findings.

### **Conclusion**

The current case study examined the nature of informal role emergence. Data were gathered from two intercollegiate basketball teams at multiple time points using questionnaires, video-recordings, and individual interviews. Descriptive analyses of the data illuminated the various factors/conditions that can facilitate/discourage the emergence of informal roles in sport team contexts. These findings may share similarities with performance groups in other contexts (e.g., industry organizations), and thus suggest several avenues for future research in and out of sport settings. Overall, it is hoped that the conceptual framework and the several propositions introduced offer a foundation to continue to investigate the complex nature of informal roles.

## References

- Bales, R. F. (1966). Task roles and social roles in problem solving groups. In B. J. Biddle & E. J. Thomas (Eds.), *Role theory: Concepts and research* (pp. 254-262). New York: John Wiley.
- Beauchamp, M. R., Bray, S. R., Eys, M. A., & Carron, A. V. (2002). Role ambiguity, role efficacy, and role performance: Multidimensional and mediational relationships within interdependent sport teams. *Group Dynamics: Theory, Research, and Practice*, 6, 229-242. doi:10.1037/1089-2699.6.3.229
- Benson, A. J., Surya, M., & Eys, M. A. (2014). The nature and transmission of roles in sport teams. *Sport, Exercise, and Performance Psychology*, 3, 228-240. doi:10.1037/spy0000016
- Benson, A. J., Surya, M., & Eys, M. (2016). The dynamic management of athletes' role expectations. In P. A. Davis (Ed.), *The psychology of effective coaching and management* (pp. 203-216). New York: Nova Science Publishers, Inc.
- Bhaskar, R. (2008). *A realist theory of science*. New York: Routledge
- Biddle, B. J., & Thomas, E. J. (1966). *Role theory: Concepts and research*. New York: Wiley.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77-101.
- Carreau, J. M., Bosselut, G., Ritchie, S. D., Heuzé, J. P., & Arppe, S. (2016). Emergence and evolution of informal roles during a canoe expedition. *Journal of Adventure Education and Outdoor Learning*, 16, 191-205. doi:10.1080/14729679.2015.1122539
- Carron, A. V., & Eys, M. A. (2012). *Group dynamics in sport* (4<sup>th</sup> ed.). Morgantown, WV: Fitness Information Technology.



- Cope, C. J., Eys, M. A., Beauchamp, M. R., Schinke, R. J., & Bosselut, G. (2011). Informal roles in sport teams. *International Journal of Sport and Exercise Psychology*, 9, 19-30.  
doi:10.1080/1612197X.2011.563124
- Cope, C. J., Eys, M. A., Schinke, R. J., & Bosselut, G. (2010). Coaches' perspectives of a negative informal role: The 'cancer' within sport teams. *Journal of Applied Sport Psychology*, 22, 420-436. doi:10.1080/10413200.2010.495327
- Cotterill, S. T., & Fransen, K. (2016). Athlete leadership in sport teams: Current understanding and future directions. *International Review of Sport and Exercise Psychology*, 9, 116-133.  
doi:10.1080/1750984X.2015.1124443
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297-334. doi:10.1007/BF02310555.
- Denzin, N. K., & Lincoln, Y. S. (Eds.). (2017). *The SAGE Handbook of Qualitative Research* (5<sup>th</sup> ed.). London: SAGE.
- Eys, M. A., Carron, A. V., Beauchamp, M. R., & Bray, S. R. (2005). Athletes' perceptions of the sources of role ambiguity. *Small Group Research*, 36, 383-403.  
doi:10.1177/1046496404268533
- Eys, M. A., Schinke, R. J., Surya, M., & Benson, A. J. (2014). Role perceptions in sport groups. In M. R. Beauchamp & M. A. Eys (Eds.), *Group dynamics in exercise and sport psychology* (2<sup>nd</sup> ed., pp. 131-146). New York: Routledge.
- Hare, A. P. (1994). Types of roles in small groups: A bit of history and a current perspective. *Small Group Research*, 25, 433-448.

- Humphrey, S. E., Hollenbeck, J. R., Meyer, C. J., & Ilgen, D. R. (2007). Trait configurations in self-managed teams: A conceptual examination of the use of seeding for maximizing and minimizing trait variance in teams. *Journal of Applied Psychology*, 92, 885-892. doi:10.1037/0021-9010.92.3.885
- John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative big five trait taxonomy. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (3<sup>rd</sup> ed., pp. 114-158). New York: The Guilford Press.
- Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A. (1964). *Organizational stress: Studies in role conflict and ambiguity*. New York: Wiley.
- Kim, J., Gardant, D., Bosselut, G., & Eys, M. (2018). Athlete personality characteristics and informal role occupancy in interdependent sport teams. *Psychology of Sport and Exercise*, 39, 193-203. doi:10.1016/j.psychsport.2018.07.011
- Kim, J., Godfrey, M., & Eys, M. (in press). The antecedents and outcomes of informal roles in interdependent sport teams. *Sport, Exercise, and Performance Psychology*.
- Leggat, F. J., Smith, M. J., & Figgins, S. G. (2019). Talented but disruptive: An exploration of problematic players in sports teams. *Journal of Applied Sport Psychology*. Advance online publication. doi:10.1080/10413200.2018.1549621
- Porter, L. W., & McLaughlin, G. B. (2006). Leadership and the organizational context: Like the weather? *The Leadership Quarterly*, 17, 559-576. doi:10.1016/j.leaqua.2006.10.002
- Rees, C. R., & Segal, M. W. (1984). Role differentiation in groups: The relationship between instrumental and expressive leadership. *Small Group Behaviour*, 15, 109-123. doi:10.1177/104649648401500106

- Smith, B. (2018). Generalizability in qualitative research: Misunderstandings, opportunities and recommendations for the sport and exercise sciences. *Qualitative Research in Sport, Exercise and Health*, 10, 137-149. doi:10.1080/2159676X.2017.1393221
- Smith, B., & McGannon, K. R. (2017). Developing rigor in qualitative research: Problems and opportunities within sport and exercise psychology. *International Review of Sport and Exercise Psychology*, 11, 101-121. doi:10.1080/1750984X.2017.1317357
- Stuart, H. C., & Moore, C. (2017). Shady characteristics: The implications of illicit organizational roles for resilient team performance. *Academy of Management Journal*, 60, 1963-1985. doi:10.5465/amj.2014.0512
- Vierimaa, M., Bruner, M. W., & Côté, J. (2018). Positive youth development and observed athlete behaviour in recreational sport. *PLoS one*, 13. doi:10.1371/journal.pone.0191936
- Vierimaa, M., & Côté, J. (2016). An exploration of sociometric status and peer relations in youth sport. *Journal of Sport Behaviour*, 39, 72-91.
- Wiltshire, G. (2018). A case for critical realism in the pursuit of interdisciplinarity and impact. *Qualitative Research in Sport, Exercise and Health*, 10, 525-542. doi:10.1080/2159676X.2018.1467482
- Yin, R. R. (2014). *Case study research: Design and methods*. (5th ed.). Thousand Oaks, CA: SAGE.
- Zaccaro, S. J. (2007). Trait-based perspectives of leadership. *American Psychologist*, 62, 6-16. doi:10.1037/0003-066X.62.1

## GENERAL DISCUSSION

Teams are kind of like a puzzle. You need different pieces to fit in order to be good.

People who can break the ice, people who can be serious, people who get the job done, people who can be vocal... (A2, from Project Three)

In line with what this quote illustrates, researchers and practitioners interested in sport team dynamics have recognized the importance of various informal roles that arise and operate outside the team's formal boundaries. However, little was known regarding the degree to which these roles exist, how they emerge, and their impact. This dissertation addressed these gaps by conducting a series of investigations that examined informal role occupancy in sport teams, as well as the various factors/processes involved in how they emerge and influence the group.

The three projects included in this dissertation were based on the list of 12 informal roles that Cope, Eys, Beauchamp, Schinke, and Bosselut (2011) identified via qualitative analyses of *Sports Illustrated* magazines as well as verification surveys with team sport athletes (Table 1). Given that informal roles are purported to develop via implicit processes and based on interactions among team members (Hare, 1994), the occupancies of these informal roles were examined mainly by collating teammates' nominations across the three projects. Descriptive examination of these nominations revealed that sport teams had some degree of agreement among the athletes in terms of which members occupied various informal roles. Specifically, most sport teams appeared to have one or two individuals who garnered the majority of their teammates' nominations for each positive informal role. Those who garnered the majority of their teammates' nominations for negative roles were rarer, but nevertheless existed for some teams. These descriptive results are important because they represent the first set of quantitative evidence that these informal roles identified by Cope and colleagues (2011) are relevant in sport

teams and because they provided insight pertaining to the degree to which informal role occupants existed.

To examine the antecedents of informal role occupancy, the first two projects focused on athletes' personality based on previous scholars' emphasis on member personality as a factor that can influence role development processes (e.g., Allen, Greenlees, & Jones, 2013; Benson, Surya, & Eys, 2016; Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). Grounded in the five-factor model of personality (McCrae & Costa, 2010), the two projects consistently demonstrated a positive association between extraversion and the comedian role, as well as a negative association between conscientiousness and the distracter role. In addition to providing support for the aforementioned scholars' emphasis on personality in relation to role development, these results demonstrated the importance of considering athletes' personality in sport research in general, an area that has been historically overlooked but is gaining more empirical attention recently (e.g., Kaiseler, Levy, Nicholls, & Madigan, 2017; Steca, Baretta, Greco, D'Addario, & Monzani, 2018). In particular, considering athlete personality in relation to group-related variables/processes that ultimately impact the overall group functioning will be meaningful for future research (Beauchamp, Jackson, & Lavalley, 2014).

Despite the consistency between the first two projects, several inconsistent associations were also noted between personality and informal role occupancy. This hinted at the possibility of other influential components of informal role emergence beyond athlete personality, necessitating a more in-depth investigation beyond regressions of quantitative variables. Thus, Project Three employed a case study approach that involved following selected sport teams over the course of their season and gathering various different types of information (questionnaire, video-recordings, interviews) to take a closer look at informal roles. The results identified

numerous factors beyond athlete personality that can facilitate/discourage the emergence of informal roles, including, but not limited to, athletes' tenure, status, personal background, as well as other contextual elements such as coaches' influence and the team environment.

Taking the results of the three projects within this dissertation collectively, it appears that formal and informal role development processes have some similarities and differences (Eys, Carron, Beauchamp, & Bray, 2005; Kahn et al., 1964). Specifically, both formal and informal role development processes appear to be influenced by factors related to the athletes who occupy the roles themselves (e.g., personality, experience), the coach (e.g., leadership style), as well as situational elements (e.g., team environment). However, informal role development processes may start when the eventual role occupant him/herself first engages in relevant informal role behaviours, as opposed to formal role transmission processes that are initiated by coaches. To this end, informal role emergence may be understood in light of DeRue and Ashford's (2010) idea of leadership construction processes in groups.

DeRue and Ashford (2010) described that leadership identity is co-constructed between members who claim and grant leader identity to each other in an iterative manner. When one claims a leader identity, others grant him/her the leader identity and subsequently claim follower identities. Similarly, informal role emergence processes may begin when favourable conditions pertaining to the role occupant (e.g., higher extraversion, tenure) and contexts (e.g., role void) lead an athlete to engage in informal role-related behaviours. These behaviours are then appraised by other members of the team, who may reject or accept them. Upon rejection, the athlete may terminate the behaviours, or continue to engage in them, which then will garner further rejections from others, eventually leading to their termination. Upon acceptance, the athlete is likely to continue to engage in the behaviours, which may garner further positive

appraisals. The athlete's informal role occupancy is expected to solidify over time via iterative processes of behaviour engagement and acceptance from others. To this end, a conceptual framework was proposed that illustrates these iterative informal role emergence processes (Figure 2). This framework provides a conceptual foundation for future research to add insight pertaining to the factors/conditions that influence the likelihood of an athlete's engagement in informal role behaviours and the patterns of other members' responses to these behaviours.

Though this dissertation focused relatively more on the emergence of informal roles, Project Two also examined their impact. The results suggested that the presence of positive informal roles (comedian, enforcer, verbal leader) could promote higher perceptions of group cohesion and athlete satisfaction, and that the presence of negative informal roles (cancer, distracter, malingerer) could undermine the team's cohesion and athletes' satisfaction. These findings affirm the propositions made by previous scholars (e.g., Benson et al., 2016; Hare, 1994) that informal roles can *supplement* or *resist* the group's formal structure. Taking the specific findings of Project Two as examples, team comedians may have supplemented humor that formal leaders (e.g., coach, captains) did not provide, which promoted more cohesive team environments. On the contrary, team cancers may have resisted the positive norms that the coaches and other teammates were trying to establish, negatively impacting the team. Overall, these results support the notion that the presence of informal roles can impact the team functioning and athletes' experiences, and thus make an important contribution to the literature that generally lacked quantitative evidence regarding the impact of informal roles.

### **Limitations and Future Directions**

Despite the insight derived from this dissertation, the fact that all 12 informal roles identified by Cope et al. (2011) were examined presented some important limitations that should

be considered. First, the relative depth in which each informal role could be examined during both data collection and analysis stages was challenged. For data collection, the large number of roles essentially forced the teammate-nominations to be simply binary (yes/no). With regard to data analyses for Projects One and Two, the large number of statistical tests inflated the possibility of committing a Type I error, necessitating much more conservative criteria for establishing statistical significance. This practice likely has inflated the probability of a Type II error. Further, statistical models were often crowded with numerous variables, potentially clouding the predictive abilities of individual variables. In fact, in Project Two, negative informal roles were consistently negatively associated with the valued outcome perceptions based on bivariate correlations, but not based on multiple regressions, highlighting the potential limitations pertaining to crowding the statistical models.

Considering the findings, as well as the aforementioned limitations, several directions for future research can be provided. Most importantly, given that this dissertation provided empirical evidence for the relevance and existence of the 12 informal roles in sport teams, future research should focus on one or a few selected informal roles in separate studies. This approach has several benefits from both conceptual and methodological standpoints. First, a more focused approach will allow examining the various aspects of the informal role occupancies/structures. Specifically, instead of simple binary nominations, athletes could be asked to report the frequency and effectiveness of their teammates' relevant informal role behaviours, as well as the specific contexts under which they occur. As an example, a team comedian's engagement in humorous behaviours, or a verbal leader's provision of instructions/encouragements, may impact the team in different ways depending on how often the role occupants engage in the behaviours, how effective the behaviours are, and whether they occur under appropriate contexts. Overall, a



more focused approach will extend the findings of the current dissertation that essentially focused only on athletes' perceptions of whether teammates did or did not engage in informal role-related behaviours.

A second benefit of focusing on one or a few informal roles in separate studies is that other variables that are conceptually linked to specific informal roles can be examined as antecedents and outcomes. As examples, individuals' humour styles (Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003) may be examined in relation to the comedian role occupancy, and individuals' ability to regulate emotions (Gross, 1998) may determine whether they spread negative emotions to others and thus occupy the cancer role. As for outcomes, team spark plugs' inspirational acts during games may promote teammates' mental toughness (Gucciardi, Gordon, & Dimmock, 2008), and the presence of nonverbal informal leaders who demonstrate exceptional work ethic during training/practice may help set positive group norms that enhance teammates' motivation and effort (cf. Spink, Crozier, & Robinson, 2013). The aforementioned variables/concepts are not meant to be exhaustive, and future researchers are encouraged to consider the nature of the informal roles to determine and test other concepts in relation to the emergence and impact of these roles.

In addition to conceptual benefits, an analytical advantage of focusing on one or a few informal roles is that it will reduce the number of statistical tests to be conducted, and thus prevent inflating the probability of committing a type II error due to using a conservative criterion for statistical significance. In fact, some of the associations that reached the conventional criterion across the two projects (i.e.,  $p < .05$ ) and were conceptually logical were determined as statistically nonsignificant (e.g., positive association between conscientiousness and the team player role, neuroticism and the malingerer role, perceived presence of team players

and task cohesion), hinting at the possibility of type II errors. As another analytical advantage, a more focused approach can help reduce the number of variables involved in each statistical test, which can prevent clouding the predictive abilities of individual predictors because of crowded statistical models.

As a final point for future directions, though the 12 informal roles identified by Cope et al. (2011) allowed a comprehensive examination of informal roles that are relevant in sport teams, it is also possible that other informal roles not included in this list are important. In fact, Cope and colleagues themselves indicated that this list was not meant to be exhaustive. As examples of other informal roles, Farrell, Schmitt, and Heinemann (2001) described a “peacemaker” who maintains/repairs member relations by mediating conflicts, and a “scapegoat” who is blamed for the group’s failures (p. 284). Though these informal roles were discussed in health care team contexts, these roles may also exist in sport teams. In conjunction with the possibility of other informal roles, certain informal roles may be salient/relevant to different degrees depending on the context. For instance, informal roles such as the team comedian and social convener could be relevant across different types of sport teams and performance groups, but an enforcer role may be only applicable in sports, and more applicable among sports that involve frequent physical contacts against the opponent team (e.g., basketball, ice hockey, soccer) as opposed to those that do not (e.g., baseball, volleyball, curling). Overall, future research may benefit from considering the potential relevance of other informal roles not examined in the current dissertation, and also the salience of informal roles across different contexts.

## **Conclusion**

The way in which groups operate are complex. Each individual member who makes up the group brings unique personal characteristics, experiences, preferences, goals, strengths, and weaknesses. All of these factors influence the processes by which one fulfills the responsibilities that he/she is assigned within the group, but they can also impact the types of roles that the individual naturally adopts as he/she makes sense of his/her place within the group. Individuals with more extraverted tendencies may organize gatherings/events for members to attend, or enhance the team's cohesion by supplementing humor in the face of adversity as the group's comedian. Those who are more serious/reserved may contribute to the team by demonstrating exceptional work ethic. On the contrary, those who are more selfish and have a sense of entitlement, without proper guidance from team leaders/mentors, may adopt cancerous tendencies over time and exert detrimental influences on the group. Overall, continued investigation of the processes by which informal roles can arise and impact the group is of both theoretical and practical importance. Theoretically, it will further advance the current understanding of the complex nature of group operations. Practically, such knowledge may help group leaders to promote more positive informal role structures, and offer individual members a variety of ways to make meaningful contributions to the overall group in addition to the formal responsibilities they are assigned.

## References

- Allen, M. S., Greenlees, L., & Jones, M. (2013). Personality in sport: A comprehensive review. *International Review of Sport and Exercise Psychology*, 6, 184-208.  
doi:10.1080/1750984X.2013.769614.
- Beauchamp, M. R., Jackson, B., & Lavallee, D. (2014). Into the mix: Personality processes and group dynamics in sport teams. In M. R. Beauchamp & M. A. Eys (Eds.), *Group dynamics in exercise and sport psychology* (2<sup>nd</sup> ed., pp. 21-37). New York: Routledge.
- Benson, A. J., Surya, M., & Eys, M. (2016). The dynamic management of athletes' role expectations. In P. A. Davis (Ed.), *The psychology of effective coaching and management* (pp. 203-216). New York: Nova Science Publishers, Inc.
- Cope, C. J., Eys, M. A., Beauchamp, M. R., Schinke, R. J., & Bosselut, G. (2011). Informal roles in sport teams. *International Journal of Sport and Exercise Psychology*, 9, 19-30.  
doi:10.1080/1612197X.2011.563124.
- DeRue, D. S., & Ashford, S. J. (2010). Who will lead and who will follow? A social process of leadership identity construction in organizations. *Academy of Management Review*, 35, 627-647. doi:10.5465/amr.35.4.zok627
- Eys, M. A., Carron, A. V., Beauchamp, M. R., & Bray, S. R. (2005). Athletes' perceptions of the sources of role ambiguity. *Small Group Research*, 36, 383-403.  
doi:10.1177/1046496404268533
- Farrell, M. P., Schmitt, M. H., & Heinemann, G. D. (2001). Informal roles and the stages of interdisciplinary team development. *Journal of Interprofessional Care*, 15(3), 281-295.  
doi:10.1080/13561820120068980.

- Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, 2, 271-299. doi:10.1037/1089-2680.2.3.271
- Gucciardi, D. F., Gordon, S., & Dimmock, J. A. (2008). Towards an understanding of mental toughness in Australian Football. *Journal of Applied Sport Psychology*, 20, 261-281. doi:10.1080/10413200801998556.
- Hare, A. P. (1994). Types of roles in small groups: A bit of history and a current perspective. *Small Group Research*, 25, 433-448.
- Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A. (1964). *Organizational stress: Studies in role conflict and ambiguity*. New York: Wiley.
- Kaiseler, M., Levy, A., Nicholls, A. R., & Madigan, D. J. (2017). The independent and interactive effects of the Big-Five personality dimensions upon dispositional coping and coping effectiveness in sport. *International Journal of Sport and Exercise Psychology*. Advance online publication. doi:10.1080/1612197X.2017.1362459.
- Martin, R. A., Puhlik-Doris, P., Larsen, G., Gray, J., & Weir, K. (2003). Individual differences in uses of humor and their relation to psychological well-being: Development of the Humor Styles Questionnaire. *Journal of Research in Personality*, 37, 48-75. doi:10.1016/S0092-6566(02)00534-2.
- McCrae, R. R., & Costa, P. T. (2010). *NEO inventories: Professional manual*. Lutz, FL: Psychological Assessment Resources.
- Spink, K. S., Crozier, A. J., & Robinson, B. (2013). Examining the relationship between descriptive norms and perceived effort in adolescent athletes: Effects of different reference groups. *Psychology of Sport and Exercise*, 14, 813-818. doi:10.1016/j.psychsport.2013.06.006

Steca, P., Baretta, D., Greco, A., D'Addario, M., & Monzani, D. (2018). Associations between personality, sports participation and athletic success. A comparison of Big Five in sporting and non-sporting adults. *Personality and Individual Differences*, *121*, 176-183. doi:10.1016/j.paid.2017.09.040.

## **APPENDICES**

## Appendix A: Athlete Demographic Questionnaire (French Sample; Project One)

### Questionnaires sur le groupe

Bonjour,

Cette étude vise à mieux comprendre les caractéristiques des joueurs au sein de l'équipe. Pour cela, différents clubs dans différents sports d'équipes ont été contactés. Votre participation est très importante pour l'étude, car plus le nombre de joueurs/joueuses sera élevé, plus les conclusions de cette étude seront représentatives du fonctionnement des équipes sportives. Il n'y a pas de bonne ou de mauvaise réponse. Vos réponses sont strictement anonymes et confidentielles.

Afin d'assurer un suivi de vos réponses, nous vous demandons d'indiquer votre date de naissance et vos initiales afin de composer un numéro d'identification. Lors du traitement des résultats, les scores seront traités globalement et aucun résultat individuel ne sera divulgué. Pour des informations complémentaires ou des remarques, n'hésitez pas à contacter l'un des auteurs de l'étude.

Merci d'avance.

**Numéro d'identification :** \_\_\_\_\_ (Date de naissance et initiales; exemples : 25/6/1986-GB, 21/1/1993-PF)

**Sport :** \_\_\_\_\_ **Nom de l'équipe :** \_\_\_\_\_

**Niveau de pratique :**

Départemental : \_\_ Régional : \_\_ National : \_\_ International : \_\_

**Es-tu un :** Homme : \_\_ Femme : \_\_

**Sur l'ensemble des matchs joués, es-tu plutôt :**

Titulaire : \_\_ Remplaçant : \_\_

Joueur s'entraînant avec le collectif sans participer au match :

**Es-tu le/la capitaine de l'équipe :** Oui : \_\_ Non : \_\_

**Ancienneté dans cette équipe** (en mois ou année) : \_\_\_\_\_ (Attention : il s'agit bien de l'ancienneté dans l'équipe et non dans le club)

**Nombre d'heures d'entraînement par semaine :** \_\_\_\_\_

**Nombre d'années de pratique de ce sport :** \_\_\_\_\_



### Appendix B: Informal Role Questionnaire – French (Project One)

**Consignes :** Dans le tableau ci-dessous, nous vous proposons une liste de rôles que les membres d'une équipe peuvent occuper. Pour chaque rôle, nous vous présentons leur définition. Indiquez le ou les rôle(s) que vous occupez habituellement dans votre équipe dans la première colonne de réponse. Si vous pensez avoir plusieurs rôles, classez-les de 1 à 3 (1 pour le rôle que vous occupez le plus souvent et 3 le moins souvent). Pour chaque rôle sélectionné, indiquez le pourcentage de temps que vous passez à l'occuper dans la seconde colonne (« je passe 80% de mon temps à être un comique » ; la somme des pourcentages doit faire 100). Enfin, estimez dans la troisième colonne le pourcentage de membres de l'équipe qui vous voit dans ce rôle (« 60% des membres de l'équipe me perçoivent comme un comique et 40% comme un mentor »).

Rôles	Définitions	1 Importance du rôle (maximum 3 rôles)	2 Temps passé dans ce rôle (en pourcentage)	3 Pourcentage de joueurs qui me voit dans ce rôle
<b>Le comique</b>	Ce joueur est le clown ou le farceur de l'équipe.			
<b>L'encourageur</b>	Un joueur qui encourage les membres de son équipe en match ou à l'entraînement.			
<b>La pomme pourrie</b>	Un joueur néfaste pour le fonctionnement de l'équipe à force d'exprimer son mécontentement.			
<b>Le distracteur</b>	Un joueur qui éloigne ou détourne l'attention des autres coéquipiers.			
<b>Le guerrier</b>	On peut compter sur lui pour aller au combat. Il sait aussi répondre aux agressions de l'équipe adverse.			
<b>Le mentor</b>	Un joueur expérimenté que l'on écoute, en qui on a confiance. Il sait donner des conseils aux autres joueurs.			
<b>Le leader – non verbal</b>	Le comportement exemplaire de ce joueur donnent envie de le suivre.			
<b>Le leader verbal</b>	Les paroles et les discours de ce joueur donnent envie de le suivre.			
<b>Le joueur dévoué à l'équipe</b>	Un joueur qui fait tellement d'effort pour l'équipe qu'il peut en oublier son propre bien-être.			
<b>La star de l'équipe</b>	Un joueur reconnu dans le milieu.			
<b>Le malade imaginaire</b>	Un joueur qui simule des blessures psychologiques ou physiques.			
<b>L'organisateur social</b>	Le joueur dévoué à l'harmonie et la vie du groupe. On peut compter sur lui pour planifier les fêtes.			

## Appendix C: Big Five Inventory – French (Project One)

### Instructions:

*Vous allez trouver un certain nombre de qualificatifs qui peuvent ou non s'appliquer à vous. Par exemple, acceptez-vous d'être quelqu'un qui aime passer du temps avec les autres ? Ecrivez devant chaque affirmation le chiffre indiquant combien vous approuvez ou désapprouvez l'affirmation*

1 désapprouve fortement	2 désapprouve un peu	3 n'approuve ni ne désapprouve	4 approuve un peu	5 approuve fortement
-------------------------------	----------------------------	--------------------------------------	----------------------	----------------------------

### *Je me vois comme quelqu'un qui ....*

1. \_\_\_\_ est bavard
2. \_\_\_\_ a tendance à critiquer les autres
3. \_\_\_\_ travaille consciencieusement
4. \_\_\_\_ est déprimé, cafardeux
5. \_\_\_\_ est créatif, plein d'idées originales
6. \_\_\_\_ est réservé
7. \_\_\_\_ est serviable et n'est pas égoïste avec les autres
8. \_\_\_\_ peut être parfois négligent
9. \_\_\_\_ est "relaxe", détendu, gère bien le stress
10. \_\_\_\_ s'intéresse à de nombreux sujets
11. \_\_\_\_ est plein d'énergie
12. \_\_\_\_ commence facilement à se disputer avec les autres
13. \_\_\_\_ est fiable dans son travail
14. \_\_\_\_ peut être angoissé
15. \_\_\_\_ est ingénieux, une grosse tête
16. \_\_\_\_ communique beaucoup d'enthousiasme
17. \_\_\_\_ est indulgent de nature
18. \_\_\_\_ a tendance à être désorganisé
19. \_\_\_\_ se tourmente beaucoup
20. \_\_\_\_ a une grande imagination
21. \_\_\_\_ a tendance à être silencieux
22. \_\_\_\_ fait généralement confiance aux autres
23. \_\_\_\_ a tendance à être paresseux
24. \_\_\_\_ est quelqu'un de tempéré, pas facilement troublé
25. \_\_\_\_ est inventif
26. \_\_\_\_ a une forte personnalité, s'exprime avec assurance
27. \_\_\_\_ est parfois dédaigneux, méprisant
28. \_\_\_\_ persévère jusqu'à ce que sa tâche soit finie
29. \_\_\_\_ peut être lunatique, d'humeur changeante

- 30. \_\_\_\_ apprécie les activités artistiques et esthétiques
- 31. \_\_\_\_ est quelquefois timide, inhibé
- 32. \_\_\_\_ est prévenant et gentil avec presque tout le monde
- 33. \_\_\_\_ est efficace dans son travail
- 34. \_\_\_\_ reste calme dans les situations angoissantes
- 35. \_\_\_\_ préfère un travail simple et routinier
- 36. \_\_\_\_ est sociable, extraverti
- 37. \_\_\_\_ est parfois impoli avec les autres
- 38. \_\_\_\_ fait des projets et les poursuit
- 39. \_\_\_\_ est facilement anxieux
- 40. \_\_\_\_ aime réfléchir et jouer avec des idées
- 41. \_\_\_\_ est peu intéressé par tout ce qui est artistique
- 42. \_\_\_\_ aime coopérer avec les autres
- 43. \_\_\_\_ est facilement distrait
- 44. \_\_\_\_ a de bonnes connaissances en art, musique ou en littérature
- 45. \_\_\_\_ cherche des histoires aux autres

***Vérifiez que vous avez bien répondu à toutes les questions. Merci.***

### **Appendix D: Research Ethics Board Approval (Project One)**

December 11, 2015

Dear Jeemin Kim

REB # 4728

Project, "The Antecedents of Informal Role Occupancy in University Sport Teams"

REB Clearance Issued: December 11, 2015

**REB Expiry / End Date: January 04, 2017**

The Research Ethics Board of Wilfrid Laurier University has reviewed the above proposal and determined that the proposal is ethically sound. If the research plan and methods should change in a way that may bring into question the project's adherence to acceptable ethical norms, please submit a "Request for Ethics Clearance of a Revision or Modification" form for approval before the changes are put into place. This form can also be used to extend protocols past their expiry date, except in cases where the project is more than two years old. Those projects require a new REB application.

Please note that you are responsible for obtaining any further approvals that might be required to complete your project.

Laurier REB approval will automatically expire when one's employment ends at Laurier.

If any participants in your research project have a negative experience (either physical, psychological or emotional) you are required to submit an "Adverse Events Form" within 24 hours of the event.

You must complete the online "Annual/Final Progress Report on Human Research Projects" form annually and upon completion of the project. ROMEO will automatically keep track of these annual reports for you. When you have a report due within 30 days (and/or an overdue report) it will be listed under the 'My Reminders' quick link on your ROMEO home screen; the number in brackets next to 'My Reminders' will tell you how many reports need to be submitted.

All the best for the successful completion of your project.

Yours sincerely,



Robert Basso, PhD  
Chair, University Research Ethics Board  
Wilfrid Laurier University

## Appendix E: Letter of Informed Consent (Project One)

### Wilfrid Laurier University



#### Letter of Informed Consent

The Antecedents of Informal Role Occupancy in University Sport Teams

*Lead Researcher: Jeemin Kim (Ph.D. student in Kinesiology)*

*Supervisor: Dr. Mark Eys, Ph.D.*

#### **INFORMATION**

You are invited to participate in a research study. The purpose of the present study is to examine how athletes come to occupy a variety of informal roles on their teams. This study is being conducted by Jeemin Kim (Ph.D. student, Department of Kinesiology/Physical Education) and Mark Eys (Ph.D., Departments of Kinesiology/Physical Education and Psychology).

Your participation in this study involves reading the informed consent statement (5 minutes) and filling out a brief questionnaire package (10 minutes for coaches, 20 minutes for athletes) that will be used to highlight the different role occupants that exist on your current team (for both coaches and athletes), and to examine your personality characteristics (for athletes only). To highlight role occupants, you will be provided with a description of each informal role, and asked to identify team members who occupy each role by writing down their jersey number found on the team roster sheet provided to you (for coaches AND athletes). Additionally (athletes ONLY), there are three personality inventories that you will be asked to complete.

#### **RISKS**

There are minimal psychological or emotional risks associated with this study including boredom, and confusion; each of which will be minimized to the best of the researchers' ability. Your information will remain confidential and your real name or team will not be used at any time during the communication of results. Furthermore, any identifying statements made will be deleted from the final analysis to ensure anonymity. There are no other anticipated physiological risks. Please feel free to contact Jeemin Kim, Mark Eys, or the WLU research office (see contact information below) in the event that you have concerns/questions.

#### **BENEFITS**

The present study looks to provide insight into the ways in which athletes come to occupy roles within the group environment. Existing research has been primarily focused on examining formal roles, while this study aims to examine the understudied area on informal roles. This study will aid in better understanding the ways in which personal characteristics of athletes may come to influence the role occupancy process.

### **CONFIDENTIALITY**

Several measures will be taken to ensure confidentiality of all your responses pertaining to the questionnaires. Only the researchers listed will have access to the information provided and the participant responses will be locked in a filing cabinet in a secure card access only office, and will be shredded and disposed of at the appropriate time (i.e., 5 years) after publication of the results. This will occur August 1<sup>st</sup>, 2022.

### **CONTACT**

If you have questions at any time about the study or the procedures, (or you experience adverse effects as a result of participating in this study) you may contact the researchers, Jeemin Kim, Ph.D. student, Department of Kinesiology/Physical Education, Wilfrid Laurier University, Waterloo, ON, N2L 3C5, Tel: 519-884-0710 x3691, kimx0650@mylaurier.ca. Alternatively, you may contact Mark Eys (supervisor), Ph.D., Departments of Kinesiology/Physical Education and Psychology, Wilfrid Laurier University, Waterloo, ON, N2L 3C5, Tel: 519-884-0710 x4157, meys@wlu.ca. This project has been reviewed and approved by the University Research Ethics Board (REB #4728). If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Robert Basso, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-1970, extension 4994 or rbasso@wlu.ca

### **PARTICIPATION**

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study, every attempt will be made to remove your data from the study, and have them destroyed. You have the right to omit any question(s)/procedure(s) you choose.

### **FEEDBACK AND PUBLICATION**

The results of this study are anticipated to be communicated at academic conferences and within written publications. If you would like a summary of the results or publications, please feel free to contact the lead researcher (Jeemin Kim, kimx0650@mylaurier.ca)

### **CONSENT**

“I have read and understand the above information. I have received a copy of this form. I agree to participate in this study.”

Participant's signature \_\_\_\_\_ Date \_\_\_\_\_

Investigator's signature \_\_\_\_\_ Date \_\_\_\_\_

If you would like to receive a general copy of the results of the study upon completion, please record your e-mail or home address here:

\_\_\_\_\_

## Appendix F: Athlete Demographic Questionnaire (Canadian Sample in Project One, Projects Two and Three)

Wilfrid Laurier

University



*Founded 1911*

ID code<sup>27</sup>: \_\_\_\_\_

Age (in years): \_\_\_\_\_

Gender: \_\_\_\_\_

Sport: \_\_\_\_\_

Jersey number<sup>28</sup>: \_\_\_\_\_

Position: \_\_\_\_\_

Number of years on this team (including the current one): \_\_\_\_\_

Please indicate which of the following best describes your current playing status this year:

Starting Player ☐

Do not typically start but consistently substituted in to play ☐

Do not typically compete in matches but dressed to play ☐

Practice player ☐

---

<sup>27</sup> Researcher-assigned ID codes were used for Project Three only.

<sup>28</sup> Jersey numbers were used for Projects One and Two only.

## Appendix G: Informal Role Questionnaire

### Instructions to Respondents

This questionnaire is designed to assess your perceptions concerning the occupancy of informal roles within your current sports team. There are no right or wrong answers so please give your immediate reaction. Your candid responses are very important to us. **Your confidentiality will be strictly kept.** Only the listed researchers (Jeemin Kim and Mark Eys) will see your responses.

This study is concerned with informal roles within sport teams. Informal roles are those that evolve as a result of the interactions that take place among your group members (i.e., typically not given to you by the coach). In the following pages, several informal roles will be defined and then questions relating to these roles will be provided.

**Please proceed to the next page....**



### <sup>29</sup>INFORMAL ROLE #1: The Comedian

“An athlete who entertains others through the use of comical situations, humorous dialogue, and practical jokes. This individual can also be referred to as a joker, clown, or prankster.”

- a. Please use the following space to identify any members of your current team (by jersey number) who fit the above descriptions. If there is no one, write “none”.

---

- b. Do you occupy this role? Yes ☐ No ☐

- c. How many teammates do you think view you as the team comedian? \_\_\_\_\_

- d. Do you feel this role has a detrimental or beneficial influence on the team (Please circle):

-4      -3      -2      -1      0      +1      +2      +3      +4  
 Detrimental   ←                      Unimportant                      →   Beneficial

### INFORMAL ROLE #2: The Spark Plug

“An athlete, who ignites, inspires or animates a group towards a common goal. May be referred to as the task booster.”

- a. Please use the following space to identify any members of your current team (by jersey number) who fit the above descriptions. If there is no one, write “none”.

---

- b. Do you occupy this role? Yes ☐ No ☐

- c. How many teammates do you think view you as the team spark plug? \_\_\_\_\_

- d. Do you feel this role has a detrimental or beneficial influence on the team (Please circle):

-4      -3      -2      -1      0      +1      +2      +3      +4  
 Detrimental   ←                      Unimportant                      →   Beneficial

<sup>29</sup> Question c was added for Project Two and Three, and question d was administered only in Project One.

**INFORMAL ROLE #3: The Cancer**

“An athlete who expresses negative emotions that spread destructively throughout the team.”

- a. Please use the following space to identify any members of your current team (by jersey number) who fit the above descriptions. If there is no one, write “none”.
- 

b. Do you occupy this role? **Yes** ☐ **No** ☐

c. How many teammates do you think view you as the team cancer? \_\_\_\_\_

d. Do you feel this role has a detrimental or beneficial influence on the team (Please circle):

-4      -3      -2      -1      0      +1      +2      +3      +4  
**Detrimental**   ←                      **Unimportant**   →                      **Beneficial**

**INFORMAL ROLE #4: The Distracter**

“An athlete who draws away or diverts the attention of other teammates decreasing their focus.”

- a. Please use the following space to identify any members of your current team (by jersey number) who fit the above descriptions. If there is no one, write “none”.
- 

b. Do you occupy this role? **Yes** ☐ **No** ☐

c. How many teammates do you think view you as the team distracter? \_\_\_\_\_

d. Do you feel this role has a detrimental or beneficial influence on the team (Please circle):

-4      -3      -2      -1      0      +1      +2      +3      +4  
**Detrimental**   ←                      **Unimportant**   →                      **Beneficial**

**INFORMAL ROLE #5: The Enforcer**

“An athlete who is physically intimidating or willingly belligerent and who is counted on to retaliate when rough tactics are used by the opposing team.”

- a. Please use the following space to identify any members of your current team (by jersey number) who fit the above descriptions. If there is no one, write “none”.
- 

b. Do you occupy this role? Yes ☐ No ☐

c. How many teammates do you think view you as the team enforcer? \_\_\_\_\_

- d. Do you feel this role has a detrimental or beneficial influence on the team (Please circle):

-4      -3      -2      -1      0      +1      +2      +3      +4  
 Detrimental   ←                      Unimportant                      →      Beneficial

**INFORMAL ROLE #6: The Mentor**

“An athlete who acts as a trusted counselor or teacher for another athlete on the team. This athlete has usually been with the team for a few years and has experience and wisdom to teach the less experienced athletes.”

- a. Please use the following space to identify any members of your current team (by jersey number) who fit the above descriptions. If there is no one, write “none”.
- 

b. Do you occupy this role? Yes ☐ No ☐

c. How many teammates do you think view you as the team mentor? \_\_\_\_\_

- d. Do you feel this role has a detrimental or beneficial influence on the team (Please circle):

-4      -3      -2      -1      0      +1      +2      +3      +4  
 Detrimental   ←                      Unimportant                      →      Beneficial

**INFORMAL ROLE #7: The Informal Leader – non verbal**

“An athlete who leads the team by example, hard work, and dedication.”

- a. Please use the following space to identify any members of your current team (by jersey number) who fit the above descriptions. If there is no one, write “none”.
- 

b. Do you occupy this role? **Yes** ☐ **No** ☐

c. How many teammates do you think view you as the team informal leader (non-verbal)? \_\_\_\_\_

d. Do you feel this role has a detrimental or beneficial influence on the team (Please circle):

-4      -3      -2      -1      0      +1      +2      +3      +4  
 Detrimental   ←                      Unimportant                      →      Beneficial

**INFORMAL ROLE #8: The Informal Leader - verbal**

“An athlete who leads the team both on and off the playing surface through verbal commands. This individual is not selected by the team as a leader but assumes the role through social interactions.”

- a. Please use the following space to identify any members of your current team (by jersey number) who fit the above descriptions. If there is no one, write “none”.
- 

b. Do you occupy this role? **Yes** ☐ **No** ☐

c. How many teammates do you think view you as the team informal leader (verbal)? \_\_\_\_\_

d. Do you feel this role has a detrimental or beneficial influence on the team (Please circle):

-4      -3      -2      -1      0      +1      +2      +3      +4  
 Detrimental   ←                      Unimportant                      →      Beneficial

**INFORMAL ROLE #9: The Team Player**

“An athlete who gives exceptional effort and can be seen as a workhorse that is willing to sacrifice and put the team before his/her own well-being.”

- a. Please use the following space to identify any members of your current team (by jersey number) who fit the above descriptions. If there is no one, write “none”.
- 

b. Do you occupy this role? Yes ☐ No ☐

c. How many teammates do you think view you as the team player? \_\_\_\_\_

d. Do you feel this role has a detrimental or beneficial influence on the team (Please circle):

-4      -3      -2      -1      0      +1      +2      +3      +4  
 Detrimental   ←      Unimportant   →      Beneficial

**INFORMAL ROLE #10: The Star Player**

“An athlete who is distinguished or celebrated because of their personality, performance, and/or showmanship.”

- a. Please use the following space to identify any members of your current team (by jersey number) who fit the above descriptions. If there is no one, write “none”.
- 

b. Do you occupy this role? Yes ☐ No ☐

c. How many teammates do you think view you as the team star player? \_\_\_\_\_

d. Do you feel this role has a detrimental or beneficial influence on the team (Please circle):

-4      -3      -2      -1      0      +1      +2      +3      +4  
 Detrimental   ←      Unimportant   →      Beneficial

**INFORMAL ROLE #11: The Malingerer**

“An athlete who prolongs psychological or physical symptoms of injury for some type of external gain (e.g., sympathy, attention, access to athletic therapy)”

- a. Please use the following space to identify any members of your current team (by jersey number) who fit the above descriptions. If there is no one, write “none”.
- 

b. Do you occupy this role? Yes ☐ No ☐

c. How many teammates do you think view you as the team malingerer? \_\_\_\_\_

d. Do you feel this role has a detrimental or beneficial influence on the team (Please circle):

-4      -3      -2      -1      0      +1      +2      +3      +4  
 Detrimental   ←      Unimportant      →      Beneficial

**INFORMAL ROLE #12: The Social Convener**

“An athlete who is involved in the planning and organization of social gatherings for a team to increase group harmony and integration.”

- a. Please use the following space to identify any members of your current team (by jersey number) who fit the above descriptions. If there is no one, write “none”:
- 

b. Do you occupy this role? Yes ☐ No ☐

c. How many teammates do you think view you as the team social convener? \_\_\_\_\_

d. Do you feel this role has a detrimental or beneficial influence on the team (Please circle):

-4      -3      -2      -1      0      +1      +2      +3      +4  
 Detrimental   ←      Unimportant      →      Beneficial

## Appendix H: Research Ethics Board Approval (Project Two)

August 17, 2017

Dear Jeemin Kim

REB # 5411

Project, "The Antecedents and Outcomes of Informal Role Occupancy in Sport Teams"

REB Clearance Issued: August 17, 2017

**REB Expiry / End Date: September 30, 2018**

The Research Ethics Board of Wilfrid Laurier University has reviewed the above proposal and determined that the proposal is ethically sound. If the research plan and methods should change in a way that may bring into question the project's adherence to acceptable ethical norms, please submit a "Request for Ethics Clearance of a Revision or Modification" form for approval before the changes are put into place. This form can also be used to extend protocols past their expiry date, except in cases where the project is more than two years old. Those projects require a new REB application.

Please note that you are responsible for obtaining any further approvals that might be required to complete your project.

Laurier REB approval will automatically expire when one's employment ends at Laurier.

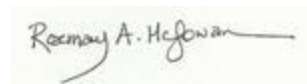
If any participants in your research project have a negative experience (either physical, psychological or emotional) you are required to submit an "Adverse Events Form" within 24 hours of the event.

You must complete the online "Annual/Final Progress Report on Human Research Projects" form annually and upon completion of the project. ROMEO will automatically keep track of these annual reports for you. When you have a report due within 30 days (and/or an overdue report) it will be listed under the 'My Reminders' quick link on your ROMEO home screen; the number in brackets next to 'My Reminders' will tell you how many reports need to be submitted. Protocols with overdue annual reports will be marked as expired. Further the REB has been requested to notify Research Finance when an REB protocol, tied to a funding account has been marked as expired. In such cases Research Finance will immediately freeze funding tied to this account.

All the best for the successful completion of your project.

Yours sincerely,

Robert Basso, PhD  
Chair, University Research Ethics Board  
Wilfrid Laurier University



Rosemary A. McGowan, PhD  
Vice-Chair, University Research Ethics Board  
Wilfrid Laurier University

## Appendix I: Letter of Informed Consent (Project Two)

Wilfrid Laurier  
University



*Founded 1911*

### Letter of Informed Consent

The Antecedents and Outcomes of Informal Role Occupancy in Sport Teams

*Lead Researcher: Jeemin Kim (Ph.D. Candidate)*

*Supervisor: Dr. Mark Eys, Ph.D.*

### **INFORMATION**

You are invited to participate in a research study. The purpose of the present study is to examine how athletes come to occupy a variety of informal roles (e.g., team comedians, mentors) on their teams, and how these informal roles influence the group. This study is being conducted by Jeemin Kim (Ph.D. candidate, Department of Kinesiology/Physical Education) and Mark Eys (Ph.D., Departments of Kinesiology/Physical Education and Psychology).

If you are an athlete, your participation in this study involves reading the informed consent statement (5 minutes) and filling out brief questionnaire packages at 3 time points throughout the season that are separated by approximately 2-3 weeks between each time point. If you are a coach, you will be asked to read the informed consent statement (5 minutes) and fill out a questionnaire at only the second time point. Each testing session will take approximately 10-15 minutes.

The time 1 questionnaires will assess your personality characteristics (athlete only). The time 2 questionnaires will assess your perceptions of group's cohesiveness (athletes only) and highlight the different role occupants that exist on your current team (coaches AND athletes). To do this, you will be provided with a description of each informal role, and asked to identify team members who occupy each role by writing down their jersey number found on the team roster sheet provided to you. The time 3 questionnaires will assess your perceptions of group's cohesiveness, satisfaction with your athletic experience, and intentions to return to playing next year (athletes only). Approximately 20-30 teams (30-40 coaches and 200-400 athletes) will be recruited for this project.

### **RISKS**

There are minimal psychological or emotional risks associated with this study including boredom, and confusion; each of which will be minimized to the best of the researchers' ability. There may be some social risks associated with this study, such as feeling anxious or a loss of confidence knowing that your teammates and coaches are answering questions regarding distinctively negative roles. In order to minimize this risk, all participants are encouraged not to discuss their responses during and after the data collection procedures. Further, your information will remain confidential and your real name or team will not be used at any time during the communication of results. There are no other anticipated physiological risks. Please feel free to contact Jeemin Kim, Mark Eys, or the WLU research office (see contact information below) in the event that you have concerns/questions.



### **BENEFITS**

The present study looks to provide insight into how informal roles develop within sport teams and influence the group. Existing research has been primarily focused on examining formal roles, while this study aims to examine the understudied area on informal roles. This study will aid in better understanding the ways in which personal characteristics of athletes may come to influence the role occupancy process, as well as how these informal roles influence the group's cohesiveness and athletes' experiences. In addition, filling out the questionnaire package may offer an opportunity for you to self-reflect on your influence on the team as an informal role occupant, and subsequently promote positive role behaviours.

### **CONFIDENTIALITY**

Several measures will be taken to ensure confidentiality of all your responses pertaining to the questionnaire. Only the researchers listed will have access to the information provided and the participant responses will be locked in a filing cabinet in a secure card access only office, and will be shredded and disposed of at the appropriate time (i.e., 5 years; August 1, 2023) after publication of the results.

### **CONTACT**

If you have questions at any time about the study or the procedures, (or you experience adverse effects as a result of participating in this study) you may contact the researchers, Jeemin Kim, Ph.D. student, Department of Kinesiology/Physical Education, Wilfrid Laurier University, Waterloo, ON, N2L 3C5, Tel: 519-884-0710 x3691, kimx0650@mylaurier.ca. Alternatively, you may contact Mark Eys (supervisor), Ph.D., Departments of Kinesiology/Physical Education and Psychology, Wilfrid Laurier University, Waterloo, ON, N2L 3C5, Tel: 519-884-0710 x4157, meys@wlu.ca. This project has been reviewed and approved by the University Research Ethics Board (REB #5411). If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Robert Basso, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-1970, extension 4994 or rbasso@wlu.ca

### **PARTICIPATION**

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study, every attempt will be made to remove your data from the study, and have them destroyed. You have the right to omit any question(s)/procedure(s) you choose.

### **FEEDBACK AND PUBLICATION**

The results of this study are anticipated to be communicated at academic conferences and within written publications. If you would like a summary of the results or publications, please feel free to contact the lead researcher (Jeemin Kim, kimx0650@mylaurier.ca)

### **CONSENT**

"I have read and understand the above information. I have received a copy of this form. I agree to participate in this study."

Participant's signature \_\_\_\_\_ Date \_\_\_\_\_

Investigator's signature \_\_\_\_\_ Date \_\_\_\_\_

If you would like to receive a general copy of the results of the study upon completion, please record your e-mail or home address here:

---

## Appendix J: Big Five Inventory (BFI)

**Instructions:** Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who *likes to spend time with others*? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

1	2	3	4	5
Disagree strongly	Disagree a little	Neither agree nor disagree	Agree a little	Agree strongly

*I see myself as someone who...*

- |   |   |
|---|---|
| 1. ____ is talkative<br>2. ____ tends to find fault with others<br>3. ____ does a thorough job<br>4. ____ is depressed, blue<br>5. ____ is original, comes up with new ideas<br>6. ____ is reserved<br>7. ____ is helpful and unselfish with others<br>8. ____ can be somewhat careless<br>9. ____ is relaxed, handles stress well<br>10. ____ is curious about many different things<br>11. ____ is full of energy<br>12. ____ starts quarrels with others<br>13. ____ is a reliable worker<br>14. ____ can be tense<br>15. ____ is ingenious, a deep thinker<br>16. ____ generates a lot of enthusiasm<br>17. ____ has a forgiving nature<br>18. ____ tends to be disorganized<br>19. ____ worries a lot<br>20. ____ has an active imagination<br>21. ____ tends to be quiet<br>22. ____ is generally trusting<br>23. ____ tends to be lazy | 24. ____ is emotionally stable, not easily upset<br>25. ____ is inventive<br>26. ____ has an assertive personality<br>27. ____ can be cold and aloof<br>28. ____ perseveres until the task is finished<br>29. ____ can be moody<br>30. ____ values artistic, aesthetic experiences<br>31. ____ is sometimes shy, inhibited<br>32. ____ is considerate and kind to almost<br>33. ____ does things efficiently<br>34. ____ remains calm in tense situations<br>35. ____ prefers work that is routine<br>36. ____ is outgoing, sociable<br>37. ____ is sometimes rude to others<br>38. ____ makes plans and follows through with them<br>39. ____ gets nervous easily<br>40. ____ likes to reflect, play with ideas<br>41. ____ has few artistic interests<br>42. ____ likes to cooperate with others<br>43. ____ is easily distracted<br>44. ____ is sophisticated in art, music, or literature |
|---|---|

**Please check:** did you write a number in front of each statement?

### Appendix K: Group Environment Questionnaire (GEQ)

The following questions are designed to assess your feelings about YOUR PERSONAL INVOLVEMENT with this team. Please CIRCLE a number from 1 to 9 to indicate your level of agreement with each of the statements.

1. I enjoy being a part of the social activities of this team.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

2. I'm happy with the amount of playing time I get.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

3. I am going to miss the members of this team when the season ends.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

4. I'm happy with my team's level of desire to win.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

5. Some of my best friends are on this team.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

6. This team gives me enough opportunities to improve my personal performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

7. I enjoy team parties more than other parties.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

8. I like the style of play on this team.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

9. For me, this team is one of the most important social groups to which I belong.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

10. Our team is united in trying to reach its goals for performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

11. Members of our team would rather go out together than go out on their own.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

12. We all take responsibility for any loss or poor performance by our team.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

13. Our team members often party together.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

14. Our team members have consistent aspirations for the team's performance.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

15. Our team would like to spend time together in the off season.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

16. If members of our team have problems in practice, everyone wants to help them so we can get back together again.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

17. Members of our team stick together outside of practices and games.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

18. Our team members communicate freely about each athlete's responsibilities during competition and practice.

1	2	3	4	5	6	7	8	9
Strongly Disagree					Strongly Agree			

### Appendix L: Athlete Satisfaction Questionnaire (ASQ)

Please recall your experiences during this particular season (or the one just completed), and record your reactions to those experiences.

<i>I am satisfied with....</i>	Not at all Satisfied		Moderately Satisfied			Extremely Satisfied	
1. the degree to which I have reached (reached) my performance goals during the season.	1	2	3	4	5	6	7
2. the improvement in my performance over the previous season.	1	2	3	4	5	6	7
3. the improvement in my skill level.	1	2	3	4	5	6	7
4. the team's win/loss record this season.	1	2	3	4	5	6	7
5. the team's overall performance this season.	1	2	3	4	5	6	7
6. the extent to which the team is meeting (has met) its goals for the season.	1	2	3	4	5	6	7
7. the extent to which teammates provide (provided) me with instruction.	1	2	3	4	5	6	7
8. the guidance I receive (received) from my teammates.	1	2	3	4	5	6	7
9. the constructive feedback I receive (received) from my teammates.	1	2	3	4	5	6	7
10. my social status on the team.	1	2	3	4	5	6	7
11. the role I play (played) in the social life of the team.	1	2	3	4	5	6	7

<i>I am satisfied with...</i>	Not at all Satisfied		Moderately Satisfied			Extremely Satisfied	
12. the degree to which my teammates accept (accepted) me on a social level.	1	2	3	4	5	6	7
13. the extent to which all team members are (were) ethical.	1	2	3	4	5	6	7
14. my teammates' sense of fair play.	1	2	3	4	5	6	7
15. my teammates' 'sportsmanlike' behaviour.	1	2	3	4	5	6	7
16. how the team works (worked) to be the best.	1	2	3	4	5	6	7
17. the degree to which teammates share (shared) the same goal.	1	2	3	4	5	6	7
18. team member's dedication to work together toward team goals.	1	2	3	4	5	6	7
19. the extent to which teammates play (played) as a team.	1	2	3	4	5	6	7
20. the degree to which I do (did) my best for the team.	1	2	3	4	5	6	7
21. my dedication during practices.	1	2	3	4	5	6	7
22. my enthusiasm during competitions.	1	2	3	4	5	6	7
23. my commitment to the team.	1	2	3	4	5	6	7

### Appendix M: Intentions to Return

Here are some statements regarding your intentions to return to play your sport next season. Please read each one and circle the number you feel best represents your intentions.

If possible, I would like to ...

1. Play this sport again next season.

1	2	3	4	5	6	7	8	9
Do not agree			Undecided			Completely agree		

2. Play at the same level again next season.

1	2	3	4	5	6	7	8	9
Do not agree			Undecided			Completely agree		

3. Play for the same team again next season.

1	2	3	4	5	6	7	8	9
Do not agree			Undecided			Completely agree		

4. Play for the same coach again next season.

1	2	3	4	5	6	7	8	9
Do not agree			Undecided			Completely agree		



## **Appendix N: Research Ethics Board Approval (Project Three)**

August 09, 2018

Dear Jeemin Kim

REB # 5797

Project, "The dynamics of informal role development within sport teams: A case study approach"

REB Clearance Issued: August 09, 2018

**REB Expiry / End Date: August 30, 2019**

The Research Ethics Board of Wilfrid Laurier University has reviewed the above proposal and determined that the proposal is ethically sound. If the research plan and methods should change in a way that may bring into question the project's adherence to acceptable ethical norms, please submit a "Request for Ethics Clearance of a Revision or Modification" form for approval before the changes are put into place. This form can also be used to extend protocols past their expiry date, except in cases where the project is more than four years old. Those projects require a new REB application.

Please note that you are responsible for obtaining any further approvals that might be required to complete your project.

Laurier REB approval will automatically expire when one's employment ends at Laurier.

If any participants in your research project have a negative experience (either physical, psychological or emotional) you are required to submit an "Adverse Events Form" within 24 hours of the event.

You must complete the online "Annual/Final Progress Report on Human Research Projects" form annually and upon completion of the project. ROMEO will automatically keep track of these annual reports for you. When you have a report due within 30 days (and/or an overdue report) it will be listed under the 'My Reminders' quick link on your ROMEO home screen; the number in brackets next to 'My Reminders' will tell you how many reports need to be submitted. Protocols with overdue annual reports will be marked as expired. Further the REB has been requested to notify Research Finance when an REB protocol, tied to a funding account has been marked as expired. In such cases Research Finance will immediately freeze funding tied to this account.

All the best for the successful completion of your project.

Yours sincerely,



**Jayne Kalmar, PhD**  
**Chair, University Research Ethics Board**  
**Wilfrid Laurier University**

OR

Robert Basso, PhD  
 Vice-Chair, University Research Ethics Board  
 Wilfrid Laurier University

OR

Rosemary A. McGowan, PhD  
 Vice-Chair, University Research Ethics Board  
 Wilfrid Laurier University

## Appendix O: Letter of Informed Consent (Project Three)

Wilfrid Laurier University



Founded 1911

The dynamics of informal role development within sport teams: A case study approach

*Lead Researcher: Jeemin Kim (Ph.D. Candidate)*

*Supervisor: Dr. Mark Eys, Ph.D.*

### **INFORMATION**

You are invited to participate in a research study. The purpose of the present study is to examine how athletes come to occupy a variety of positive (e.g., team comedians, mentors) and negative (e.g., team cancers) informal roles on their teams. This study is being conducted by Jeemin Kim (Ph.D. candidate, Department of Kinesiology/Physical Education) and Mark Eys (Ph.D., Departments of Kinesiology/Physical Education and Psychology).

Your participation in this study involves reading the informed consent statement (5 minutes) and filling out brief questionnaire packages at 4 time points throughout the season (before season, near the beginning of the season, mid-season, and near the end of the season). Each testing session will take approximately 10 minutes for coaches and 20 minutes for athletes. The time 1 (before season) questionnaires pertain to various demographic factors (e.g., age, gender, tenure on team; athletes and coaches) and personality characteristics (athletes only). At each of the other three sessions during the season, athletes and coaches will be provided with a list of informal roles with their descriptions, and asked to identify team athlete members who occupy each role by writing down their unique ID codes assigned to each athlete.

In addition, you will also be invited to participate in focus group near the end of season, which is expected to last between 45 and 90 minutes. The focus groups will be audio-recorded and transcribed verbatim later for analysis. In addition, 1-2 practice and 1-2 game sessions will be video-recorded, and these recordings will be analyzed to see how frequently athletes engage in various behaviours (e.g., prosocial, antisocial, general communication). If you decide to participate, you may decide to participate in only parts of the study (i.e., only the questionnaire testing sessions but not the focus groups, or vice versa).

### **RISKS**

While participants are encouraged not to discuss their responses during and after the data collection procedures, you may be feeling anxious or a loss of confidence due to answering questions regarding your emotional states or negative roles on the team (e.g., team cancers), or knowing that your teammates are answering questions regarding negative roles. Within the focus groups, it is possible that some of your team members may discuss your own informal role involvements, which may be positive or negative. All focus group participants are encouraged to discuss the within-team informal role involvements in constructive manners, and will be asked to sign a confidentiality agreement where they agree not to disclose any information shared during the focus groups. In summary, there is some social and emotional risk associated with this study. Your information will remain confidential and your real name or team name will not be used at any time during the communication of results. There are no other anticipated physiological risks. Please feel free to contact Jeemin Kim, Mark Eys, or the WLU research office (see contact information below) in the event that you have concerns/questions.

### **BENEFITS**

The present study looks to provide insight into how informal roles develop within sport teams. Existing research has been primarily focused on examining formal roles, while this study aims to examine the understudied area on informal roles. In addition, filling out the questionnaire package may offer an opportunity for you to self-reflect on your influence on the team as an informal role occupant, and subsequently promote positive role behaviours.

### **CONFIDENTIALITY**

Several measures will be taken to ensure confidentiality of all your responses. Only the researchers listed will have access to the data gathered and the responses in the paper questionnaires will be locked in a filing cabinet in a secure card access only office. For all data (i.e., questionnaires, behavioural data from video-recordings, audio-recordings of focus groups), unique ID codes will be used instead of your names, and all electronic files (video-recordings, audio-recordings of focus groups, verbatim focus group transcripts) will be stored on a password-protected computer. All data will be shredded/disposed of at the appropriate time (i.e., 5 years; August 1, 2024) after publication of the results.

### **CONTACT**

If you have questions at any time about the study or the procedures, (or you experience adverse effects as a result of participating in this study) you may contact the researchers, Jeemin Kim, Ph.D. Candidate, Department of Kinesiology/Physical Education, Wilfrid Laurier University, Waterloo, ON, N2L 3C5, Tel: 519-884-0710 x3691, kimx0650@mylaurier.ca. Alternatively, you may contact Mark Eys (supervisor), Ph.D., Departments of Kinesiology/Physical Education and Psychology, Wilfrid Laurier University, Waterloo, ON, N2L 3C5, Tel: 519-884-0710 x4157, meys@wlu.ca. This project has been reviewed and approved by the University Research Ethics Board (REB #5797). If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Jayne Kalmar, PhD, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-1970, extension 3131 or REBchair@wlu.ca. In case of any negative emotional states/moods as a result of your participation, you are encouraged to contact a local distress centre (a list can be found at: <http://www.dcontario.org/centres.html>).

### **PARTICIPATION**

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study, every attempt will be made to remove your data from the study, and have them destroyed. You have the right to omit any question(s)/procedure(s) you choose.

### **FEEDBACK AND PUBLICATION**

The results of this study are anticipated to be communicated at academic conferences and within written publications. If you would like a summary of the results or publications, please feel free to contact the lead researcher (Jeemin Kim, kimx0650@mylaurier.ca)

### **CONSENT**

“I have read and understand the above information. I have received a copy of this form. I agree to participate in this study.”

Participant's signature \_\_\_\_\_ Date \_\_\_\_\_

Investigator's signature \_\_\_\_\_ Date \_\_\_\_\_

If you would like to receive a general copy of the results of the study upon completion, please record your e-mail or home address here:

\_\_\_\_\_

## Appendix P: Letter of Informed Consent (Project Three; Interview Portion)

Wilfrid Laurier University



Founded 1911

The dynamics of informal role development within sport teams: A case study approach

*Lead Researcher: Jeemin Kim (Ph.D. Candidate)*

*Supervisor: Dr. Mark Eys, Ph.D.*

### **INFORMATION**

As part of the research study titled “The dynamics of informal role development within sport teams: A case study approach”, you are invited to participate in a focus group. You will be asked various questions pertaining to your perspectives and experiences regarding the informal role structures within your team. This focus group is expected to last 45-90 minutes (including reading the informed consent form; 5 minutes) and will be audio-recorded and transcribed verbatim later for analysis.

### **RISKS**

There are potential psychological and emotional risks associated with your participation including regret over the revelation of personal information during the focus group, and disruption of work/family time. These feelings are normal and should be temporary. You will be offering responses related to your personal experiences and insights related to informal roles in your team. In addition, some of your teammates may discuss your own informal role involvements within the team, which may be positive or negative. All participants are encouraged to discuss the informal role involvements within the team in a constructive manner, and will be asked to sign a confidentiality agreement below where they agree not to disclose any information shared during the focus groups. It is important to note that your real name or team name will not be used at any time during the communication of results. Furthermore, any identifying statements made will be omitted from the final analysis to ensure anonymity. In addition, there are no anticipated physiological risks. Please feel free to contact Jeemin Kim, M.A., Mark Eys, Ph.D., or the WLU research office (see contact information below) in the event that you have concerns/questions.

### **BENEFITS**

The present focus group looks to provide insight into how informal roles develop within sport teams. Existing research has been primarily focused on examining formal roles, while this study aims to examine the understudied area of informal roles. In addition, participating in this focus group may offer an opportunity for you to reflect on the team dynamics, and subsequently promote positive role behaviours in your team as athletes or coaches.

### **CONFIDENTIALITY**

Several measures will be taken to ensure confidentiality of all your responses. Only the researchers listed will have access to the data gathered. Unique ID codes will be used instead of your names, and all electronic files (audio-recordings of focus groups, verbatim transcriptions of focus groups) will be stored on a password-protected computer. All data (questionnaires, video-recordings) will be shredded/disposed of at the appropriate time (i.e., 5 years; August 1, 2024) after publication of the results.

### **CONTACT**

If you have questions at any time about the focus group or experience adverse effects as a result of participating, you may contact the researchers, Jeemin Kim, Ph.D. Candidate, Department of Kinesiology/Physical Education, Wilfrid Laurier University, Waterloo, ON, N2L 3C5, Tel: 519-884-0710 x3691, [kimx0650@mylaurier.ca](mailto:kimx0650@mylaurier.ca). Alternatively, you may contact Mark Eys (supervisor), Ph.D., Departments of Kinesiology/Physical Education and Psychology, Wilfrid Laurier University, Waterloo, ON, N2L 3C5, Tel: 519-884-0710 x4157, [meys@wlu.ca](mailto:meys@wlu.ca). This project has been reviewed and approved by the University Research Ethics Board (REB #5797). If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Jayne Kalmar, PhD, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-1970, extension 3131 or [REBchair@wlu.ca](mailto:REBchair@wlu.ca). In case of any negative emotional states/moods as a result of your participation, you are encouraged to contact a local distress centre (a list can be found at: <http://www.dcontario.org/centres.html>).

### **PARTICIPATION**

Your participation in this focus group is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study, every attempt will be made to remove your data from the study, and have them destroyed. You have the right to omit any question(s)/procedure(s) you choose.

### **FEEDBACK AND PUBLICATION**

The results of this study are anticipated to be communicated at academic conferences and within written publications. If you would like a summary of the results or publications, please feel free to contact the lead researcher (Jeemin Kim, [kimx0650@mylaurier.ca](mailto:kimx0650@mylaurier.ca))

### **CONSENT FOR FOCUS GROUP PARTICIPANTS ONLY**

"I have read and understand the above information. I have received a copy of this form. I agree to participate in the focus group. I consent to the audio-recording of the focus group with a digital recorder."

Participant's signature \_\_\_\_\_ Date \_\_\_\_\_

I consent to the use of my de-identified quotations in any publications resulting from this study. I also understand that the researchers will email me a copy of my focus group transcript to review and approve: ☐

I do not consent to the use of my quotations: ☐

Participant's signature \_\_\_\_\_ Date \_\_\_\_\_

Investigator's signature \_\_\_\_\_ Date \_\_\_\_\_

### **CONFIDENTIALITY AGREEMENT**

I agree not to disclose any information that was shared during the focus group outside the group.

Participant's signature \_\_\_\_\_ Date \_\_\_\_\_

## Appendix Q: Coach Demographic Questionnaire (Project Three)

Wilfrid Laurier University



Founded 1911

### Coach Demographic Questionnaire

The dynamics of informal role development within sport teams: A case study approach

*Lead Researcher: Jeemin Kim (Ph.D. Candidate)*

*Supervisor: Dr. Mark Eys, Ph.D.*

Age (in years): \_\_\_\_\_

Gender: \_\_\_\_\_

Are you a(n): Head coach ☐ Assistant coach ☐

Sport: \_\_\_\_\_

Years of coaching experience at the current level (including current one):

As a head coach: \_\_\_\_\_ As an assistant coach: \_\_\_\_\_

Have you also coached at other levels of competitions? If so, how many years? \_\_\_\_\_

Years of coaching experience with the current team (including the current one): \_\_\_\_\_

Highest coaching certification: \_\_\_\_\_

## **Appendix R: Interview Guide (Project Three)**

### *Opening Question*

1. Informal roles are defined as those roles that arise naturally... Tell me about the informal roles that emerged on your team
  - a. Please provide some example behaviours they displayed that made you think he/she was the role occupant

### *Key Questions*

2. \*[Based on the answer from Q1, or based on the list of 12 roles (Cope et al., 2011)], how do you think these roles emerge?
  - a. How, if at all, do the processes differ across informal roles?
  - b. When do these roles emerge?
3. How stable are these roles?
  - a. Are informal roles occupied by the same individuals over time, or do they change? If they change, could you describe how this change occurs?
  - b. Do individuals occupy the same role(s) over time, or do they occupy different roles over time? If different, could you describe how this change occurs?
  - c. Under what situations do others replace one's role?
4. What are some outcomes associated with having informal role occupants on the team?
  - a. What are the benefits/detriments?
  - b. What are the outcomes to specific teammates individually or to the overall team?
  - c. How, if at all, are these outcomes different across different informal roles?
  - d. What would you say is the most salient/important informal role(s) for team success? Why?

### *Concluding Question*

5. Do you have anything that we have not discussed that you wish to add to our conversation about informal roles?

## TABLES



**Table 1.**  
List of Informal Roles

Name	Definition
Comedian	An athlete who entertains others through the use of comical situations, humorous dialogue, and practical jokes. This individual can also be referred to as a jokester, clown, or prankster.
Spark plug	An athlete who ignites, inspires, or animates a group toward a common goal. May be referred to as the task booster.
Enforcer	An athlete who is physically intimidating or willingly belligerent and who is counted on to retaliate when rough tactics are used by the opposing team.
Mentor	An athlete who acts as a trusted counselor or teacher for another athlete on the team. This athlete has usually been with the team for a few years and has experience and wisdom to teach the less experienced athlete(s).
Informal leader – non verbal	An athlete who leads the team by example, hard work, and dedication.
Informal leader – verbal	An athlete who leads the team both on and off the playing surface through verbal commands. This individual is not selected by the team as a leader but assumes the role through social interactions.
Team player	An athlete who gives exceptional effort and can be seen as a workhorse that is willing to sacrifice and put the team before his/her own well-being.
Star player	An athlete who is distinguished or celebrated because of their personality, performance, and/or showmanship.
Social convener	An athlete who is involved in the planning and organization of social gatherings for a team to increase group harmony and integration.
Cancer	An athlete who expresses negative emotions that spread destructively throughout a team.
Distracter	An athlete who draws away or diverts the attention of other teammates decreasing their focus.
Malingerer	An athlete who prolongs psychological or physical symptoms of injury for some type of external gain (e.g., sympathy, attention, access to athletic therapy).

*Note.* This table was adapted from “Informal roles in sport teams,” by C. J. Cope, M. A. Eys, M. R. Beauchamp, R. J. Schinke, and G. Bosselut, 2011, *International Journal of Sport and Exercise Psychology*, 9(1), 19-30. Reprinted by permission of the publisher (Taylor & Francis Ltd, <http://www.tandfonline.com>).

**Table 2.**  
Athletes' Informal Role Occupancy (Project One)

Role name	French ( <i>N</i> = 340; 34 teams)		Canadian ( <i>N</i> = 195; 14 teams)		Canadian ( <i>N</i> = 246*; 14 teams)	
	Self-identification		Self-identification		50% Teammate-identification	
	Total	Per team	Total	Per team	Total	Per team
Comedians	116 (34.1%)	3.41	64 (32.8%)	4.57	21 (8.5%)	1.50
Spark Plugs	208 (61.2%)	6.12	71 (36.4%)	5.07	22 (8.9%)	1.57
Enforcers	146 (42.9%)	4.29	52 (26.7%)	3.71	13 (5.3%)	0.93
Mentors	51 (15.0%)	1.50	71 (36.4%)	5.07	32 (13%)	2.29
Non-verbal leader	64 (18.8%)	1.88	98 (50.3%)	7.00	18 (7.3%)	1.29
Verbal leader	39 (11.5%)	1.15	65 (33.3%)	4.64	19 (7.7%)	1.36
Team player	107 (31.5%)	3.15	128 (65.6%)	9.14	19 (7.7%)	1.36
Star player	22 (6.5%)	0.65	43 (22.1%)	3.07	15 (6.1%)	1.07
Social convener	51 (15.1%)	1.5	43 (22.1%)	3.07	20 (8.1%)	1.43
Cancers	10 (2.9%)	0.29	2 (1%)	0.14	3 (1.2%)	0.21
Distracters	29 (8.5%)	0.85	12 (6.2%)	0.86	4 (1.6%)	0.29
Malingerer	16 (4.7%)	0.47	0 (0%)	0.00	8 (3.3%)	0.57

*Note.* For self-identification, the percentages are out of the total number of participants in each study (*N* = 340 for Study 1, *N* = 195 for Study 2). \*For teammate-identification (Study 2 only), the percentages are out of total roster spaces (*N* = 246) as all team members (regardless of their presence during data collection) had a chance to receive nominations.

**Table 3.**

Personality Differences between Self-Identified Role Occupants vs. Non-Role Occupants (Project One; Study 1)

<b>Comedians</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 224$ )	$2.45 \pm 0.73$	$3.41 \pm 0.73$	$3.23 \pm 0.55$	$4.01 \pm 0.53$	$3.69 \pm 0.64$
Yes ( $n = 116$ )	$2.47 \pm 0.70$	$3.90 \pm 0.68$	$3.35 \pm 0.59$	$3.90 \pm 0.57$	$3.57 \pm 0.62$
Mean Difference	0.02	0.49***	0.12	-0.11	-0.12
<b>Spark plug</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 132$ )	$2.36 \pm 0.73$	$3.60 \pm 0.80$	$3.28 \pm 0.58$	$3.94 \pm 0.59$	$3.62 \pm 0.67$
Yes ( $n = 208$ )	$2.51 \pm 0.71$	$3.57 \pm 0.72$	$3.27 \pm 0.56$	$3.99 \pm 0.52$	$3.67 \pm 0.61$
Mean Difference	0.15	-0.03	-0.01	0.05	0.05
<b>Enforcer</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 194$ )	$2.51 \pm 0.78$	$3.50 \pm 0.73$	$3.25 \pm 0.59$	$3.96 \pm 0.56$	$3.62 \pm 0.64$
Yes ( $n = 146$ )	$2.37 \pm 0.62$	$3.68 \pm 0.77$	$3.30 \pm 0.52$	$3.98 \pm 0.53$	$3.69 \pm 0.63$
Mean Difference	-0.14	0.18	0.05	0.02	0.07
<b>Mentor</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 289$ )	$2.46 \pm 0.73$	$3.55 \pm 0.75$	$3.27 \pm 0.58$	$3.97 \pm 0.55$	$3.63 \pm 0.64$
Yes ( $n = 51$ )	$2.40 \pm 0.63$	$3.73 \pm 0.71$	$3.30 \pm 0.45$	$3.98 \pm 0.57$	$3.79 \pm 0.60$
Mean Difference	-0.06	0.18	0.03	0.01	0.16
<b>Non-verbal leader</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 276$ )	$2.47 \pm 0.71$	$3.65 \pm 0.75$	$3.28 \pm 0.57$	$3.93 \pm 0.55$	$3.63 \pm 0.64$
Yes ( $n = 64$ )	$2.37 \pm 0.75$	$3.26 \pm 0.68$	$3.25 \pm 0.55$	$4.16 \pm 0.48$	$3.72 \pm 0.63$
Mean Difference	-0.10	-0.39***	-0.03	0.23**	0.09
<b>Verbal leader</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 301$ )	$2.48 \pm 0.74$	$3.54 \pm 0.75$	$3.25 \pm 0.56$	$3.94 \pm 0.56$	$3.61 \pm 0.63$
Yes ( $n = 39$ )	$2.29 \pm 0.56$	$3.85 \pm 0.68$	$3.41 \pm 0.59$	$4.18 \pm 0.44$	$3.95 \pm 0.57$
Mean Difference	-0.19	0.31	0.16	0.24	0.34**

*Note.* \*\*  $p < .01$ , \*\*\*  $p < .001$ . Mean differences = mean personality scores for role occupants – mean personality scores of non-occupants (i.e., positive numbers indicate higher scores for the self-identified role occupants than non-occupants). The possible range of the scores is 4 (1 to 5).

**Table 3. Cont'd**

Personality Differences between Self-Identified Role Occupants vs. Non-Role Occupants (Project One; Study 1)

<b>Team player</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 233$ )	$2.44 \pm 0.70$	$3.63 \pm 0.75$	$3.29 \pm 0.56$	$3.92 \pm 0.55$	$3.63 \pm 0.64$
Yes ( $n = 107$ )	$2.48 \pm 0.77$	$3.46 \pm 0.74$	$3.22 \pm 0.58$	$4.08 \pm 0.54$	$3.69 \pm 0.62$
Mean Difference	0.04	-0.17	-0.07	0.16	0.06
<b>Star player</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 318$ )	$2.46 \pm 0.72$	$3.57 \pm 0.75$	$3.27 \pm 0.57$	$3.99 \pm 0.54$	$3.65 \pm 0.64$
Yes ( $n = 22$ )	$2.43 \pm 0.68$	$3.74 \pm 0.66$	$3.30 \pm 0.46$	$3.70 \pm 0.59$	$3.60 \pm 0.55$
Mean Difference	-0.03	0.17	0.03	-0.29	-0.05
<b>Social convener</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 289$ )	$2.44 \pm 0.72$	$3.55 \pm 0.76$	$3.26 \pm 0.56$	$3.98 \pm 0.55$	$3.64 \pm 0.64$
Yes ( $n = 51$ )	$2.53 \pm 0.74$	$3.76 \pm 0.67$	$3.31 \pm 0.57$	$3.93 \pm 0.52$	$3.73 \pm 0.62$
Mean Difference	0.09	0.21	0.05	-0.05	0.09
<b>Cancer</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 330$ )	$2.45 \pm 0.71$	$3.59 \pm 0.73$	$3.27 \pm 0.56$	$3.99 \pm 0.55$	$3.66 \pm 0.63$
Yes ( $n = 10$ )	$2.60 \pm 0.91$	$3.23 \pm 1.31$	$3.14 \pm 0.81$	$3.40 \pm 0.31$	$3.42 \pm 0.92$
Mean Difference	0.15	-0.36	-0.13	-0.59	-0.24
<b>Distracter</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 311$ )	$2.44 \pm 0.72$	$3.56 \pm 0.76$	$3.28 \pm 0.56$	$3.99 \pm 0.54$	$3.68 \pm 0.63$
Yes ( $n = 29$ )	$2.62 \pm 0.71$	$3.78 \pm 0.54$	$3.18 \pm 0.61$	$3.74 \pm 0.62$	$3.29 \pm 0.63$
Mean Difference	0.18	0.22	-0.10	-0.25	-0.39**
<b>Malingerer</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 324$ )	$2.44 \pm 0.71$	$3.59 \pm 0.75$	$3.29 \pm 0.56$	$3.99 \pm 0.54$	$3.66 \pm 0.63$
Yes ( $n = 16$ )	$2.70 \pm 0.93$	$3.38 \pm 0.69$	$2.93 \pm 0.58$	$3.63 \pm 0.56$	$3.37 \pm 0.60$
Mean Difference	0.26	-0.21	-0.36	-0.36	-0.29

*Note.* \*\* $p < .01$ , \*\*\* $p < .001$ . Mean differences = mean personality scores for role occupants – mean personality scores of non-occupants (i.e., positive numbers indicate higher scores for the self-identified role occupants than non-occupants). The possible range of the scores is 4 (1 to 5).

**Table 4.**  
Congruence between Self-Identification and Teammate-Identification (Project One; Study 2)

	<b>Self- vs. teammate-identification (50%)</b>			
	<b>Congruent<sup>a</sup></b>	<b>Total Incongruent<sup>b</sup></b>	<b>Over<sup>c</sup></b>	<b>Under<sup>d</sup></b>
Comedians	138 (72.6%)	52 (27.4%)	49 (25.8%)	3 (1.6%)
Spark plugs	124 (66.0%)	64 (34.0%)	58 (30.9%)	6 (3.1%)
Enforcers	144 (76.6%)	44 (23.4%)	43 (22.9%)	1 (0.5%)
Mentors	139 (72.4%)	53 (27.6%)	49 (25.5%)	4 (2.1%)
Non-verbal leader	101 (54.3%)	85 (45.7%)	84 (45.2%)	1 (0.5%)
Verbal leader	135 (71.4%)	54 (28.6%)	52 (27.5%)	2 (1.1%)
Team player	82 (42.3%)	112 (57.7%)	111 (57.2%)	1 (0.5%)
Star player	152 (82.2%)	33 (17.9%)	31 (16.8%)	2 (1.1%)
Social convener	148 (78.7%)	40 (21.3%)	32 (17.0%)	8 (4.3%)
Cancers	178 (97.3%)	5 (2.7%)	2 (1.1%)	3 (1.6%)
Distracters	169 (94.4%)	10 (5.6%)	9 (5.0%)	1 (0.6%)
Malingerer	176 (97.2%)	5 (2.8%)	0 (0%)	5 (2.8%)

<sup>a</sup>Number of athletes whose self-identification was congruent with the identification by the majority (50%) of their teammates

<sup>b</sup>Number of athletes whose self-identification was incongruent with the identification by the majority (50%) of their teammates

<sup>c</sup>Number of athletes who self-identified as role occupants but were not identified by the majority (50%) of their teammates (i.e., self over-identification)

<sup>d</sup>Number of athletes who did not self-identify as role occupants but were identified by the majority (50%) of their teammates (i.e., self under-identification)

**Table 5.**

Personality Differences between Self-Identified Role Occupants vs. Non-Role Occupants (Project One; Study 2)

<b>Comedians</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 124$ )	$23.29 \pm 7.09$	$32.05 \pm 6.76$	$26.34 \pm 5.91$	$31.75 \pm 6.60$	$32.45 \pm 7.19$
Yes ( $n = 62$ )	$22.58 \pm 8.50$	$34.79 \pm 7.04$	$28.19 \pm 5.53$	$31.34 \pm 6.22$	$30.89 \pm 6.40$
Mean Difference	-0.71	2.74	1.85	-0.41	-1.56
<b>Spark plugs</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 115$ )	$23.67 \pm 7.25$	$32.05 \pm 7.23$	$26.32 \pm 6.00$	$31.05 \pm 6.56$	$30.98 \pm 7.35$
Yes ( $n = 69$ )	$22.13 \pm 7.78$	$34.51 \pm 5.83$	$27.94 \pm 5.32$	$32.58 \pm 6.20$	$33.48 \pm 6.16$
Mean Difference	-1.54	2.46	1.62	1.53	2.50
<b>Enforcers</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 135$ )	$22.83 \pm 7.16$	$33.31 \pm 7.05$	$26.64 \pm 5.85$	$32.30 \pm 6.22$	$32.17 \pm 7.10$
Yes ( $n = 49$ )	$23.67 \pm 8.33$	$32.43 \pm 6.54$	$28.06 \pm 5.74$	$29.88 \pm 6.56$	$32.10 \pm 6.38$
Mean Difference	0.84	-0.88	1.42	-2.42	-0.07
<b>Mentors</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 119$ )	$23.71 \pm 7.10$	$32.34 \pm 7.16$	$26.57 \pm 5.90$	$31.25 \pm 6.36$	$31.29 \pm 7.07$
Yes ( $n = 69$ )	$22.25 \pm 8.18$	$34.36 \pm 6.02$	$27.91 \pm 5.45$	$32.22 \pm 6.52$	$33.17 \pm 6.62$
Mean Difference	-1.46	2.02	1.34	0.97	1.88
<b>Non-verbal leaders</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 87$ )	$23.40 \pm 6.32$	$33.30 \pm 6.90$	$26.98 \pm 6.33$	$31.53 \pm 6.41$	$30.84 \pm 7.33$
Yes ( $n = 95$ )	$22.74 \pm 8.15$	$32.25 \pm 7.00$	$27.09 \pm 4.92$	$31.67 \pm 6.28$	$33.01 \pm 6.38$
Mean Difference	-0.66	-1.05	0.11	0.14	2.17
<b>Verbal leaders</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 122$ )	$24.11 \pm 6.87$	$31.84 \pm 7.38$	$27.24 \pm 5.70$	$31.62 \pm 6.79$	$30.87 \pm 7.32$
Yes ( $n = 62$ )	$20.53 \pm 7.92$	$34.69 \pm 5.64$	$26.23 \pm 5.80$	$31.66 \pm 5.75$	$34.19 \pm 5.45$
Mean Difference	-3.58**	2.85**	-1.01	0.04	3.32**

*Note.* \*\*  $p < .01$ , \*\*\*  $p < .001$ . Mean differences = mean personality scores for role occupants – mean personality scores of non-occupants (i.e., positive numbers indicate higher scores for the self-identified role occupants than non-occupants). The possible range of the scores is 48 (0 to 48).

**Table 5. Cont'd**

Personality Differences between Self-Identified Role Occupants vs. Non-Role Occupants (Project One; Study 2)

<b>Team players</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 66$ )	23.50 $\pm$ 6.85	31.45 $\pm$ 7.64	26.36 $\pm$ 6.26	30.06 $\pm$ 7.41	30.39 $\pm$ 7.65
Yes ( $n = 124$ )	22.94 $\pm$ 7.91	33.71 $\pm$ 6.39	27.27 $\pm$ 5.54	32.46 $\pm$ 5.64	32.77 $\pm$ 6.39
Mean Difference	-0.56	2.26	0.91	2.40	2.38
<b>Star players</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 140$ )	23.15 $\pm$ 7.65	32.87 $\pm$ 6.94	27.30 $\pm$ 5.95	32.56 $\pm$ 6.37	32.06 $\pm$ 7.20
Yes ( $n = 41$ )	22.24 $\pm$ 7.13	33.46 $\pm$ 6.67	26.34 $\pm$ 4.92	28.78 $\pm$ 5.90	31.41 $\pm$ 6.31
Mean Difference	-0.91	0.59	-0.96	-3.78	-0.65
<b>Social convener</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 141$ )	23.08 $\pm$ 7.75	32.09 $\pm$ 7.17	26.45 $\pm$ 5.69	31.52 $\pm$ 6.20	31.79 $\pm$ 7.32
Yes ( $n = 42$ )	23.55 $\pm$ 7.22	36.12 $\pm$ 5.13	28.24 $\pm$ 5.95	32.55 $\pm$ 7.21	32.40 $\pm$ 5.38
Mean Difference	0.47	4.03	1.79	1.03	0.61
<b>Cancers</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 177$ )	23.16 $\pm$ 7.50	33.01 $\pm$ 6.95	27.21 $\pm$ 5.70	31.77 $\pm$ 6.35	31.89 $\pm$ 7.07
Yes ( $n = 2$ )	27.00 $\pm$ 2.83	35.50 $\pm$ 0.71	25.00 $\pm$ 2.83	34.50 $\pm$ 0.71	25.50 $\pm$ 2.12
Mean Difference	3.84	2.49	-2.21	2.73	-6.39
<b>Distracters</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 164$ )	23.10 $\pm$ 7.47	32.68 $\pm$ 6.98	27.10 $\pm$ 5.70	31.91 $\pm$ 6.40	32.56 $\pm$ 6.83
Yes ( $n = 11$ )	26.00 $\pm$ 8.32	37.82 $\pm$ 5.19	25.91 $\pm$ 7.74	32.64 $\pm$ 7.67	26.00 $\pm$ 7.29
Mean Difference	2.90	5.14	-1.19	0.73	-6.56**
<b>Malingers</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 176$ )	23.03 $\pm$ 7.54	32.99 $\pm$ 6.93	27.15 $\pm$ 5.92	31.75 $\pm$ 6.37	32.08 $\pm$ 6.99
Yes ( $n = 0$ )					

*Note.* \*\* $p < .01$ , \*\*\* $p < .001$ . Mean differences = mean personality scores for role occupants – mean personality scores of non-occupants (i.e., positive numbers indicate higher scores for the self-identified role occupants than non-occupants). The possible range of the scores is 48 (0 to 48).

**Table 6.**  
Multiple Regression Summary (Stepwise Entry; Project One; Study 2)

<b>Outcome</b>		<b>Coefficients</b>			<b>Adjust. <math>R^2</math></b>	<b><math>\Delta R^2</math></b>	<b><math>F</math></b>	<b><math>p</math></b>
<b>Comedian %</b>	<b>Predictor(s)</b>	<b><math>\beta</math></b>	<b><math>t</math></b>	<b><math>p</math></b>				
Model 1 (stepwise entry)	Extraversion	.22	$t(189) = 3.08$	.002	.04	.04	$F(1, 189) = 9.47$	.002
Model 1 (forced entry)	Extraversion	.24	$t(185) = 3.18$	.002	.05	.05	$F(5, 185) = 3.02$	.012
<b>Spark plug %</b>	<b>Predictor(s)</b>	<b><math>\beta</math></b>	<b><math>t</math></b>	<b><math>p</math></b>	<b>Adjust. <math>R^2</math></b>	<b><math>\Delta R^2</math></b>	<b><math>F</math></b>	<b><math>p</math></b>
None								
<b>Enforcer %</b>	<b>Predictor(s)</b>	<b><math>\beta</math></b>	<b><math>t</math></b>	<b><math>p</math></b>	<b>Adjust. <math>R^2</math></b>	<b><math>\Delta R^2</math></b>	<b><math>F</math></b>	<b><math>p</math></b>
None								
<b>Mentor %</b>	<b>Predictor(s)</b>	<b><math>\beta</math></b>	<b><math>t</math></b>	<b><math>p</math></b>	<b>Adjust. <math>R^2</math></b>	<b><math>\Delta R^2</math></b>	<b><math>F</math></b>	<b><math>p</math></b>
Model 1 (stepwise entry)	Neuroticism	-.19	$t(189) = -2.65$	.009	.03	.03	$F(1, 189) = 7.04$	.009
Model 1 (forced entry)	Neuroticism	-.18	$t(185) = -2.32$	.021	.02	.02	$F(5, 185) = 1.74$	.127
<b>Non-verbal leader %</b>	<b>Predictor(s)</b>	<b><math>\beta</math></b>	<b><math>t</math></b>	<b><math>p</math></b>	<b>Adjust. <math>R^2</math></b>	<b><math>\Delta R^2</math></b>	<b><math>F</math></b>	<b><math>p</math></b>
None								
<b>Verbal leader %</b>	<b>Predictor(s)</b>	<b><math>\beta</math></b>	<b><math>t</math></b>	<b><math>p</math></b>	<b>Adjust. <math>R^2</math></b>	<b><math>\Delta R^2</math></b>	<b><math>F</math></b>	<b><math>p</math></b>
Model 1 (stepwise entry)	Neuroticism	-.19	$t(189) = -2.65$	.009	.03	.03	$F(1, 189) = 7.00$	.009
Model 1 (forced entry)	Neuroticism	-.20	$t(185) = -2.48$	.014	.02	.02	$F(5, 185) = 1.59$	.164



**Table 6. Cont'd**

Multiple Regression Summary (Stepwise Entry; Project One; Study 2)

Outcome	Predictor(s)	Coefficient			Adjust. $R^2$	$\Delta R^2$	$F$	$p$
		$\beta$	$t$	$p$				
Team player %	None							
Star player %	Predictor(s)	$\beta$	$t$	$p$	Adjust. $R^2$	$\Delta R^2$	$F$	$p$
Model 1	Agreeableness	-.22	$t(189) = -3.16$	.002	.05	.05	$F(1, 189) = 9.96$	.002
Social convener %	Predictor(s)	$\beta$	$t$	$p$	Adjust. $R^2$	$\Delta R^2$	$F$	$p$
	None							
Cancer %	Predictor(s)	$\beta$	$t$	$p$	Adjust. $R^2$	$\Delta R^2$	$F$	$p$
	None							
Distracter %	Predictor(s)	$\beta$	$t$	$p$	Adjust. $R^2$	$\Delta R^2$	$F$	$p$
Model 1	Conscientiousness	-.22	$t(189) = -3.07$	.002	.04	.04		
Model 2	Conscientiousness	-.26	$t(188) = -3.62$	<.001				
	Extraversion	.21	$t(188) = 2.91$	.004	.08	.04	$F(2, 188) = 9.13$	<.001
Malingerer %	Predictor(s)	$\beta$	$t$	$p$	Adjust. $R^2$	$\Delta R^2$	$F$	$p$
	None							

**Table 7.**  
 Personality Predicting Received Teammate-Nominations as Role Occupants (Project Two)

Outcome		Coefficients				Overall Model		
Comedian %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	Adj. <i>R</i> <sup>2</sup>	<i>F</i>	<i>p</i>
Model 1	Extraversion <sup>#</sup>	.10	<i>t</i> (221) = 5.68	<.001	[.06, .13]	.14	<i>F</i> (2, 221) = 18.41	<.001
	Conscientiousness <sup>#</sup>	-.06	<i>t</i> (221) = -2.56	.011	[-.11, -.01]			
Mentor %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	Adj. <i>R</i> <sup>2</sup>	<i>F</i>	<i>p</i>
Model 1	Neuroticism <sup>#</sup>	.02	<i>t</i> (222) = .97	.334	[-.02, .07]	<.001	<i>F</i> (1, 222) = .94	.334
Verbal leader %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	Adj. <i>R</i> <sup>2</sup>	<i>F</i>	<i>p</i>
Model 1	Neuroticism <sup>#</sup>	.01	<i>t</i> (222) = .57	.568	[-.02, .04]	-.003	<i>F</i> (1, 222) = .33	.568
Model 2	Extraversion	.06	<i>t</i> (218) = 4.16	<.001	[.04, .09]	.07	<i>F</i> (5, 218) = 4.25	.001
Star player %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	Adj. <i>R</i> <sup>2</sup>	<i>F</i>	<i>p</i>
Model 1	Agreeableness <sup>#</sup>	-.04	<i>t</i> (222) = -1.35	.179	[-.09, .01]	.004	<i>F</i> (1, 222) = 1.82	.179
Social convener %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	Adj. <i>R</i> <sup>2</sup>	<i>F</i>	<i>p</i>
Model 1	Extraversion	.06	<i>t</i> (218) = 3.74	<.001	[.03, .09]	.06	<i>F</i> (5, 218) = 3.76	.003
Cancer %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	Adj. <i>R</i> <sup>2</sup>	<i>F</i>	<i>p</i>
Model 1	Extraversion	.03	<i>t</i> (218) = 3.89	<.001	[.01, .04]	.12	<i>F</i> (5, 218) = 6.82	<.001
	Agreeableness	-.03	<i>t</i> (218) = -3.09	.002	[-.06, -.01]			
	Neuroticism	.02	<i>t</i> (218) = 2.89	.004	[.01, .04]			
Distracter %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	Adj. <i>R</i> <sup>2</sup>	<i>F</i>	<i>p</i>
Model 1	Extraversion <sup>#</sup>	.04	<i>t</i> (221) = 5.06	<.001	[.02, .05]	.14	<i>F</i> (2, 221) = 18.87	<.001
	Conscientiousness <sup>#</sup>	-.04	<i>t</i> (221) = -3.85	<.001	[-.07, -.01]			

*Note.* <sup>#</sup>Hypothesized associations. For non-hypothesized associations, only statistically significant results ( $p < .00427$ ) are reported. Unstandardized *B* values are reported. Bias-corrected and accelerated bootstrap ( $N = 5,000$ ) 95% confidence intervals are reported.

**Table 8.**

Bivariate Correlations between the Percentage of Outgoing Nominations and Dimensions of Outcome Variables (Project Two)

<b>Role Name</b>	<b>ATG-T</b>	<b>ATG-S</b>	<b>GI-T</b>	<b>GI-S</b>	<b>AS-TP</b>	<b>AS-TTC</b>	<b>AS-TSC</b>	<b>AS-TI</b>	<b>AS-PD</b>	<b>Int-sport</b>	<b>Int-team</b>
<b>Comedian</b>	.05	.03	.09	.07	-.07	.06	.04	.02	.06	-.01	-.01
<b>Spark plug</b>	.01	.06	-.02	.10	-.11	.13	.15	-.09	-.05	.06	-.01
<b>Enforcer</b>	.06	.11	.14	.09	-.10	.10	.14	.02	-.02	-.002	-.05
<b>Mentor</b>	-.09	-.07	.001	-.04	-.12	.07	.03	-.05	-.09	.05	-.03
<b>NVL</b>	-.002	.08	-.01	.08	-.09	-.04	.16	-.02	.02	-.003	-.02
<b>VL</b>	-.03	.01	-.06	-.01	-.14	.03	.11	-.14	-.08	-.04	-.13
<b>Team player</b>	.09	.06	.02	.03	.02	.02	.11	.04	.02	.03	.02
<b>Star player</b>	-.07	-.09	-.02	-.01	.03	.12	.06	-.06	-.10	-.12	-.09
<b>Social convener</b>	.01	.06	.10	.13	-.04	.13	.18**	.05	.001	.03	-.05
<b>Cancer</b>	-.22**	-.22**	-.28***	-.24***	-.07	-.18	-.09	-.24***	-.24***	-.19**	-.30***
<b>Distracter</b>	-.19**	-.20**	-.21**	-.18	-.09	-.21**	-.16	-.28***	-.32***	-.25***	-.29***
<b>Malingerer</b>	-.15	-.10	-.26***	-.10	-.16	-.19**	-.05	-.32***	-.20**	-.08	-.14

*Note.* \*\*  $p < .01$  \*\*\*  $p < .001$ . Outcome variables at time 3, outgoing role nominations at time 2. The percentage of outgoing nominations were calculated by dividing the number of teammates nominated by the total number of teammates on the roster. NVL = Non-verbal leader, VL = Verbal leader, ATG-T = Attractions to group-task, ATG-S = Attractions to group-social, GI-T = Group integration-task, GI-S = Group integration-social, AS = Athlete satisfaction, TP = team performance, TTC = team task contribution, TSC = team social contribution, TI = Team integration, PD = Personal dedication, Int-sport = Intentions to return to sport the following season, Int-team = Intentions to return to the team the following season.

**Table 9.**

The Percentage of Outgoing Role Nominations Predicting Dimensions of Outcome Variables (Project Two)

Outcome	Predictor(s)	Coefficients				Overall Model		
		<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	<i>Adj. R<sup>2</sup></i>	<i>F</i>	<i>p</i>
<b>ATG-S</b>	-					.05	$F(12, 175) = 1.75$	.059
<b>ATG-T</b>	-					.05	$F(12, 175) = 1.86$	.042
<b>GI-S</b>	-					.04	$F(12, 175) = 1.65$	.081
<b>GI-T</b>	Comedian	2.87	$t(175) = 2.89$	.004	[1.04, .5.42]	.14	$F(12, 175) = 3.54$	<.001
	Enforcer	4.87	$t(175) = 3.06$	.003	[2.08, 7.18]			
<b>AS-TP</b>	-					.04	$F(12, 175) = 1.72$	.066
<b>AS-TTC</b>	-					.06	$F(12, 175) = 1.97$	.029
<b>AS-TSC</b>	-					.03	$F(12, 175) = 1.43$	.158
<b>AS-TI</b>	Verbal leader	-3.19	$t(175) = -2.88$	.0045	[-5.74, .90]	.15	$F(12, 175) = 3.68$	<.001
<b>AS-PD</b>	Distracter	-3.99	$t(175) = -3.81$	<.001	[-6.18, -2.13]	.12	$F(12, 175) = 3.14$	<.001
<b>Int-Sport</b>	-					.05	$F(12, 172) = 1.80$	.051
<b>Int-Team</b>	-					.09	$F(12, 172) = 2.50$	.005

Note. Only statistically significant results are reported ( $p < .00465$ ). The percentage of outgoing nominations were calculated by dividing the number of teammates nominated by the total number of teammates on the roster. ATG-S = Attractions to group-social, ATG-T = Attractions to the group-task, GI-S = Group integration-social, GI-T = Group integration-task, AS = Athlete satisfaction, TP = Team performance, TTC = Team task contribution, TSC = Team social contribution, TI = Team integration, PD = Personal dedication, Int-sport = Intentions to return to sport in the following season, Int-team = Intentions to return to the team in the following season. Unstandardized *B* values are reported. Bias-corrected and accelerated bootstrap ( $N = 5,000$ ) 95% confidence intervals are reported.

**Table 10.**  
Descriptions of Coded Behaviour Categories (Project Three)

Content	Modifier	Examples
Prosocial	Verbal	Cheering for teammates and acknowledging good plays verbally (e.g., “Let’s go!”, “Great job!”)
	Non-verbal	Encouraging teammates non-verbally (e.g., thumps up, clapping, high-fives)
Sport-related	Verbal	Providing/sharing sport-related information verbally (e.g., counting the shot clock, discussing tactics during stoppages of play)
	Non-verbal	Non-verbal cues used to provide sport-related information (e.g., hand signals to call plays, pointing to an opponent player)

*Note.* The context in which the behaviours occurred were also coded (on-court vs. off-court).

**Table 11.**  
Personality and Demographics Summary for Each Role Category (Project Three)

<b>Role categories</b>	<b>Number of athletes</b>	<b>Tenure</b>	<b>Playing time (minutes per game)</b>	<b>E (vs. others)</b>	<b>A (vs. others)</b>	<b>C (vs. others)</b>	<b>N (vs. others)</b>	<b>O (vs. others)</b>
Great people	7	2 <sup>nd</sup> -5 <sup>th</sup>	27.34	3.93 (vs. 2.93)	3.84 (vs. 4.18)	3.68 (vs. 3.64)	2.45 (vs. 2.64)	2.97 (vs. 3.18)
Task specialist	5	2 <sup>nd</sup> -4 <sup>th</sup>	17.82	2.28 (vs. 3.39)	4.34 (vs. 4.04)	4.18 (vs. 3.54)	2.48 (vs. 2.62)	3.03 (vs. 3.15)
Social specialist	1	3 <sup>rd</sup>	15-25	4.13 (vs. 3.15)	2.33 (vs. 4.16)	2.78 (vs. 3.69)	1.88 (vs. 2.62)	2.80 (vs. 3.13)
Deviant	2	1 <sup>st</sup>	0-10	4.32 (vs. 3.10)	4.11 (vs. 4.09)	3.67 (vs. 3.65)	2.63 (vs. 2.59)	3.35 (vs. 3.11)
Enforcers	3	2 <sup>nd</sup>	17.77	2.88 (vs. 3.23)	4.30 (vs. 4.07)	3.48 (vs. 3.68)	2.38 (vs. 2.62)	3.77 (vs. 3.04)
No informal roles	9	1 <sup>st</sup> -2 <sup>nd</sup>	7.20	2.86 (vs. 3.35)	4.28 (vs. 4.00)	3.49 (vs. 3.73)	2.91 (vs. 2.43)	3.07 (vs. 3.15)

*Notes.* Great people = those who occupied task- (e.g., spark plug, verbal leader) and social-oriented (i.e., comedian, social convener) informal roles, Task specialist = those who occupied only task-oriented roles, Social specialist = those who occupied only social-oriented roles, Deviant = those who occupied at least one negative role (cancer, distracter, malingerer). E = Extraversion, A = Agreeableness, C = Conscientiousness, N = Neuroticism, O = Openness to experience. Values in parentheses indicate the means of all other athletes not included in each category. Playing time represents the average of athletes' minutes played per game during the regular season. Because of the small number of athletes classified as the Social specialist and the Deviant, approximate ranges were provided for playing time to enhance anonymity.

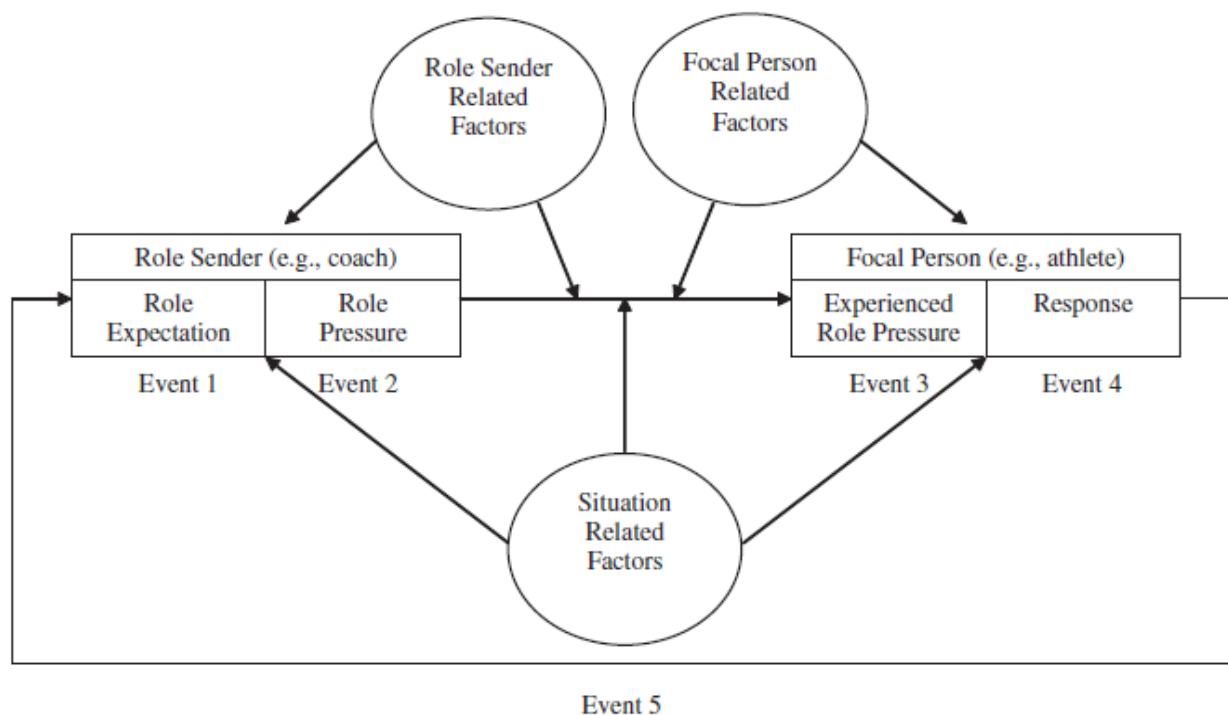
**Table 12.**  
Behaviour Frequencies for Each Role Category (Project Three)

Role categories	Number of athletes	P_onc (vs. others)	PV_onc (vs. others)	PN_onc (vs. others)	P_ofc (vs. others)	PV_ofc (vs. others)	PN_ofc (vs. others)
Great people	7	0.78 (vs. 0.63)	0.01 (vs. 0.01)	0.75 (vs. 0.61)	4.10 (vs. 3.06)	2.03 (vs. 1.17)	1.42 (vs. 1.39)
Task specialist	5	0.57 (vs. 0.72)	0.01 (vs. 0.01)	0.56 (vs. 0.69)	2.77 (vs. 3.41)	0.67 (vs. 1.51)	1.64 (vs. 1.35)
Social specialist	1	0.93 (vs. 0.68)	0.07 (vs. 0.004)	0.79 (vs. 0.66)	3.23 (vs. 3.31)	1.38 (vs. 1.37)	1.35 (vs. 1.40)
Deviant	2	-	-	-	3.14 (vs. 3.32)	0.79 (vs. 1.42)	1.65 (vs. 1.37)
Enforcers	3	0.54 (vs. 0.73)	0 (vs. 0.01)	0.52 (vs. 0.70)	2.74 (vs. 3.39)	0.87 (vs. 1.44)	1.69 (vs. 1.36)
No informal roles	9	0.69 (vs. 0.69)	0 (vs. 0.01)	0.69 (vs. 0.66)	3.26 (vs. 3.34)	1.55 (vs. 1.28)	1.12 (vs. 1.55)
Role categories	Number of athletes	S_onc (vs. others)	SV_onc (vs. others)	SN_onc (vs. others)	S_ofc (vs. others)	SV_ofc (vs. others)	SN_ofc (vs. others)
Great people	7	1.64 (vs. 1.60)	0.38 (vs. 0.29)	0.89 (vs. 0.97)	0.91 (vs. 0.61)	0.52 (vs. 0.45)	0.10 (vs. 0.03)
Task specialist	5	0.95 (vs. 1.76)	0.23 (vs. 0.35)	0.53 (vs. 1.02)	0.49 (vs. 0.72)	0.39 (vs. 0.48)	0.03 (vs. 0.05)
Social specialist	1	4.43 (vs. 1.44)	0.5 (vs. 0.32)	3.29 (vs. 0.80)	1.54 (vs. 0.65)	1.23 (vs. 0.44)	0 (vs. 0.05)
Deviant	2	-	-	-	0.65 (vs. 0.69)	0.3 (vs. 0.48)	0.13 (vs. 0.04)
Enforcers	3	1.59 (vs. 1.62)	0.36 (vs. 0.32)	1.08 (vs. 0.91)	0.83 (vs. 0.67)	0.51 (vs. 0.46)	0.03 (vs. 0.05)
No informal roles	9	1.39 (vs. 1.65)	0.21 (vs. 0.34)	0.59 (vs. 1.01)	0.49 (vs. 0.80)	0.41 (vs. 0.50)	0.02 (vs. 0.06)

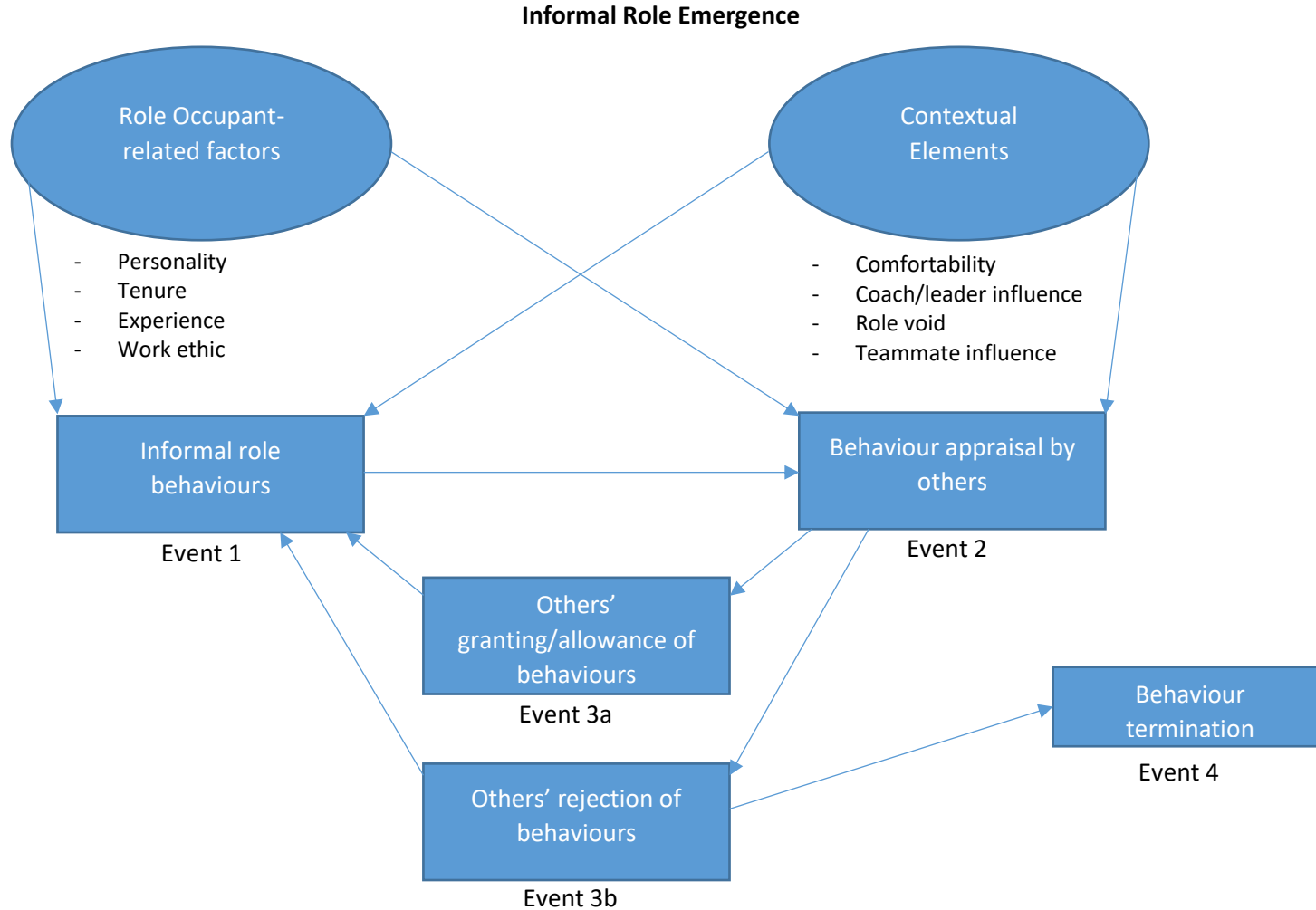
*Notes.* Great people = those who occupied task- (e.g., spark plug, verbal leader) and social-oriented (i.e., comedian, social convener) informal roles, Task specialist = those who occupied only task-oriented roles, Social specialist = those who occupied only social-oriented roles, Deviant = those who occupied at least one negative role (cancer, distracter, malingerer). P = prosocial (verbal and nonverbal), PV = prosocial-verbal, PN = prosocial-nonverbal, S = sport (verbal and nonverbal), SV = sport-verbal, SN = sport-nonverbal, onc = on-court, ofc = off-court. Behaviour frequencies per minute provided. For computing mean behaviour frequencies on-court and off-court, values for those who spent less than 5 minutes in a given context were not considered for that context (e.g., If an athlete spent 2 minutes on court, his/her behaviour frequencies on court were not examined).

## FIGURES





*Figure 1.* Role episode model (Eys, Carron, Beauchamp, & Bray, 2005, adapted from Kahn et al., 1964). This theoretical model describes a series of interpersonal events that occur when a role is transmitted. This model also indicates that various elements related to the role senders (e.g., coach's experience), the focal person (e.g., athlete's skill level), and situations (e.g., timing of sport season) influence the role transmission events within a full role episode cycle.



*Figure 2.* A proposed conceptual representation of informal role emergence. The examples provided in the figure are not meant to be exhaustive, and it is possible that various other factors not mentioned in the current paper influence the informal role emergence processes. The arrows indicate the proposed sequences of events, and thus should be tested empirically in future research.

**SUPPLEMENTAL MATERIALS (PROJECT ONE)**

**Supplemental Material (Project One) 1.****Descriptive Information Regarding Participant Demographics and Big Five Personality**

<b>Variable</b>	<b>French (34 teams; Study 1)</b>	<b>Canadian (14 teams; Study 2)</b>
Gender	132 female, 208 male ( $N = 340$ )	135 female, 60 male ( $N = 195$ )
Age (years)	23.70 ( $SD = 7.33$ )	20.22 ( $SD = 1.91$ )
Team tenure (years)	2.16 ( $SD = 2.66$ )	2.12 ( $SD = 1.17$ )
Status		
Starters <sup>a</sup>	256 (75.29%)	104 (53.33%)
Non-starters <sup>b</sup>	70 (20.59%)	81 (41.54%)
Practice <sup>c</sup>	14 (4.12%)	5 (2.56%)
Injured	N/A	2 (1.03%)
Unidentified	N/A	3 (1.54%)
Extraversion	3.58 ( $SD = 0.75$ )	3.74 ( $SD = 0.57$ )
Agreeableness	3.97 ( $SD = 0.55$ )	3.64 ( $SD = 0.53$ )
Conscientiousness	3.65 ( $SD = 0.64$ )	3.66 ( $SD = 0.58$ )
Neuroticism	2.45 ( $SD = 0.72$ )	2.93 ( $SD = 0.63$ )
Openness to Experience	3.27 ( $SD = 0.56$ )	3.25 ( $SD = 0.48$ )

*Note.* The instrument used to assess the big five personality scores of the athletes for the French sample (BFI-Fr) was based on a 1-5 scale, whereas the instrument used with the Canadian sample (NEO-FFI-3) was based on a 0-4 scale. For ease of comparisons, the scores for the Canadian sample were converted to a 1-5 scale.

<sup>a</sup> athletes who indicated that they typically start competitive matches

<sup>b</sup> athletes who indicated that they typically do not start games but are regularly substituted in to play

<sup>c</sup> athletes who indicated that they practice with the team without playing in competition

## Supplemental Material (Project One) 2.

### Personality Differences between Self-Identified Role Occupants vs. Non-Role Occupants (Study 1)

Comedians	Multivariate Comparison	N	E	O	A	C
No ( $n = 224$ )	$F(5, 334) = 9.16$ ,	$2.45 \pm 0.73$	$3.41 \pm 0.73$	$3.23 \pm 0.55$	$4.01 \pm 0.53$	$3.69 \pm 0.64$
Yes ( $n = 116$ )	$p < .001$ ; Wilk's	$2.47 \pm 0.70$	$3.90 \pm 0.68$	$3.35 \pm 0.59$	$3.90 \pm 0.57$	$3.57 \pm 0.62$
Mean Difference	$\lambda = .88, \eta^2 = .12$	0.02	0.49***	0.12	-0.11	-0.12
Univariate Comparison		$F(1, 338) = .07$ , $p = .79, \eta^2 < .001$	$F(1, 338) = 36.74$ , $p < .001, \eta^2 = .10$	$F(1, 338) = 3.56$ , $p = .06, \eta^2 = .01$	$F(1, 338) = 2.78$ , $p = .096, \eta^2 = .01$	$F(1, 338) = 2.84$ , $p = .093, \eta^2 = .01$
Spark plug	Multivariate Comparison	N	E	O	A	C
No ( $n = 132$ )	$F(5, 334) = 1.24$ ,	$2.36 \pm 0.73$	$3.60 \pm 0.80$	$3.28 \pm 0.58$	$3.94 \pm 0.59$	$3.62 \pm 0.67$
Yes ( $n = 208$ )	$p = .289$ ; Wilk's	$2.51 \pm 0.71$	$3.57 \pm 0.72$	$3.27 \pm 0.56$	$3.99 \pm 0.52$	$3.67 \pm 0.61$
Mean Difference	$\lambda = .98, \eta^2 = .02$	0.15	-0.03	-0.01	0.05	0.05
Univariate Comparison		$F(1, 338) = 3.74$ , $p = .054, \eta^2 = .01$	$F(1, 338) = .12$ , $p = .729, \eta^2 < .001$	$F(1, 338) = .03$ , $p = .859, \eta^2 < .001$	$F(1, 338) = .61$ , $p = .436, \eta^2 = .002$	$F(1, 338) = .33$ , $p = .567, \eta^2 = .001$
Enforcer	Multivariate Comparison	N	E	O	A	C
No ( $n = 194$ )	$F(5, 334) = 1.41$ ,	$2.51 \pm 0.78$	$3.50 \pm 0.73$	$3.25 \pm 0.59$	$3.96 \pm 0.56$	$3.62 \pm 0.64$
Yes ( $n = 146$ )	$p = .221$ ; Wilk's	$2.37 \pm 0.62$	$3.68 \pm 0.77$	$3.30 \pm 0.52$	$3.98 \pm 0.53$	$3.69 \pm 0.63$
Mean Difference	$\lambda = .98, \eta^2 = .02$	-0.14	0.18	0.05	0.02	0.07
Univariate Comparison		$F(1, 338) = 3.18$ , $p = .076, \eta^2 = .01$	$F(1, 338) = 4.46$ , $p = .036, \eta^2 = .01$	$F(1, 338) = .86$ , $p = .355, \eta^2 = .003$	$F(1, 338) = .17$ , $p = .685, \eta^2 < .001$	$F(1, 338) = 1.17$ , $p = .28, \eta^2 = .003$
Mentor	Multivariate Comparison	N	E	O	A	C
No ( $n = 289$ )	$F(5, 334) = 1.00$ ,	$2.46 \pm 0.73$	$3.55 \pm 0.75$	$3.27 \pm 0.58$	$3.97 \pm 0.55$	$3.63 \pm 0.64$
Yes ( $n = 51$ )	$p = .419$ ; Wilk's	$2.40 \pm 0.63$	$3.73 \pm 0.71$	$3.30 \pm 0.45$	$3.98 \pm 0.57$	$3.79 \pm 0.60$
Mean Difference	$\lambda = .99, \eta^2 = .02$	-0.06	0.18	0.03	0.01	0.16
Univariate Comparison		$F(1, 338) = .38$ , $p = .538, \eta^2 = .001$	$F(1, 338) = 2.55$ , $p = .111, \eta^2 = .01$	$F(1, 338) = .17$ , $p = .684, \eta^2 < .001$	$F(1, 338) = .01$ , $p = .925, \eta^2 < .001$	$F(1, 338) = 2.89$ , $p = .09, \eta^2 = .01$

Note. \*\* $p < .01$ , \*\*\* $p < .001$ . Mean differences = mean personality scores for role occupants – mean personality scores of non-occupants (i.e., positive numbers indicate higher scores for the self-identified role occupants than non-occupants). The possible range of the scores is 4 (1 to 5).

### Supplemental Material (Project One) 2. Cont'd

Personality Differences between Self-Identified Role Occupants vs. Non-Role Occupants (Study 1)

Non-verbal leader	Multivariate Comparison	N	E	O	A	C
No ( $n = 276$ )	$F(5, 334) = 4.85$ ,	$2.47 \pm 0.71$	$3.65 \pm 0.75$	$3.28 \pm 0.57$	$3.93 \pm 0.55$	$3.63 \pm 0.64$
Yes ( $n = 64$ )	$p < .001$ ; Wilk's	$2.37 \pm 0.75$	$3.26 \pm 0.68$	$3.25 \pm 0.55$	$4.16 \pm 0.48$	$3.72 \pm 0.63$
Mean Difference	$\Lambda = .93, \eta^2 = .07$	-0.10	-0.39***	-0.03	0.23**	0.09
Univariate Comparison		$F(1, 338) = 1.21, p = .272, \eta^2 = .004$	$F(1, 338) = 14.68, p < .001, \eta^2 = .04$	$F(1, 338) = .14, p = .706, \eta^2 < .001$	$F(1, 338) = 10.00, p = .002, \eta^2 = .03$	$F(1, 338) = .84, p = .359, \eta^2 = .002$
Verbal leader	Multivariate Comparison	N	E	O	A	C
No ( $n = 301$ )	$F(5, 334) = 3.71$ ,	$2.48 \pm 0.74$	$3.54 \pm 0.75$	$3.25 \pm 0.56$	$3.94 \pm 0.56$	$3.61 \pm 0.63$
Yes ( $n = 39$ )	$p = .003$ ; Wilk's	$2.29 \pm 0.56$	$3.85 \pm 0.68$	$3.41 \pm 0.59$	$4.18 \pm 0.44$	$3.95 \pm 0.57$
Mean Difference	$\Lambda = .95, \eta^2 = .05$	-0.19	0.31	0.16	0.24	0.34**
Univariate Comparison		$F(1, 338) = 2.40, p = .122, \eta^2 = .01$	$F(1, 338) = 5.66, p = .018, \eta^2 = .02$	$F(1, 338) = 2.57, p = .110, \eta^2 = .01$	$F(1, 338) = 6.68, p = .01, \eta^2 = .02$	$F(1, 338) = 10.46, p = .001, \eta^2 = .03$
Team player	Multivariate Comparison	N	E	O	A	C
No ( $n = 233$ )	$F(5, 334) = 2.20$ ,	$2.44 \pm 0.70$	$3.63 \pm 0.75$	$3.29 \pm 0.56$	$3.92 \pm 0.55$	$3.63 \pm 0.64$
Yes ( $n = 107$ )	$p = .054$ ; Wilk's	$2.48 \pm 0.77$	$3.46 \pm 0.74$	$3.22 \pm 0.58$	$4.08 \pm 0.54$	$3.69 \pm 0.62$
Mean Difference	$\Lambda = .97, \eta^2 = .03$	0.04	-0.17	-0.07	0.16	0.06
Univariate Comparison		$F(1, 338) = .14, p = .712, \eta^2 < .001$	$F(1, 338) = 3.67, p = .056, \eta^2 = .01$	$F(1, 338) = 1.12, p = .290, \eta^2 = .003$	$F(1, 338) = 5.89, p = .016, \eta^2 = .02$	$F(1, 338) = .71, p = .399, \eta^2 = .002$
Star player	Multivariate Comparison	N	E	O	A	C
No ( $n = 318$ )	$F(5, 334) = 1.39$ ,	$2.46 \pm 0.72$	$3.57 \pm 0.75$	$3.27 \pm 0.57$	$3.99 \pm 0.54$	$3.65 \pm 0.64$
Yes ( $n = 22$ )	$p = .226$ ; Wilk's	$2.43 \pm 0.68$	$3.74 \pm 0.66$	$3.30 \pm 0.46$	$3.70 \pm 0.59$	$3.60 \pm 0.55$
Mean Difference	$\Lambda = .98, \eta^2 = .02$	-0.03	0.17	0.03	-0.29	-0.05
Univariate Comparison		$F(1, 338) = .02, p = .880, \eta^2 < .001$	$F(1, 338) = 1.15, p = .284, \eta^2 = .003$	$F(1, 338) = .08, p = .777, \eta^2 < .001$	$F(1, 338) = 5.57, p = .019, \eta^2 = .02$	$F(1, 338) = .17, p = .683, \eta^2 < .001$

Note. \*\* $p < .01$ , \*\*\* $p < .001$ . Mean differences = mean personality scores for role occupants – mean personality scores of non-occupants (i.e., positive numbers indicate higher scores for the self-identified role occupants than non-occupants). The possible range of the scores is 4 (1 to 5).

## Supplemental Material (Project One) 2. Cont'd

Personality Differences between Self-Identified Role Occupants vs. Non-Role Occupants (Study 1)

<b>Social convener</b>	<b>Multivariate Comparison</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 289$ )	$F(5, 334) = 1.19$ ,	$2.44 \pm 0.72$	$3.55 \pm 0.76$	$3.26 \pm 0.56$	$3.98 \pm 0.55$	$3.64 \pm 0.64$
Yes ( $n = 51$ )	$p = .315$ ; Wilk's	$2.53 \pm 0.74$	$3.76 \pm 0.67$	$3.31 \pm 0.57$	$3.93 \pm 0.52$	$3.73 \pm 0.62$
Mean Difference	$\Lambda = .98, \eta^2 = .02$	0.09	0.21	0.05	-0.05	0.09
Univariate Comparison		$F(1, 338) = .74, p = .390, \eta^2 = .002$	$F(1, 338) = 3.61, p = .058, \eta^2 = .01$	$F(1, 338) = .22, p = .638, \eta^2 = .001$	$F(1, 338) = .29, p = .591, \eta^2 = .001$	$F(1, 338) = 1.01, p = .315, \eta^2 = .003$
<b>Cancer</b>	<b>Multivariate Comparison</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 330$ )	$F(5, 334) = 3.03$ ,	$2.45 \pm 0.71$	$3.59 \pm 0.73$	$3.27 \pm 0.56$	$3.99 \pm 0.55$	$3.66 \pm 0.63$
Yes ( $n = 10$ )	$p = .011$ ; Wilk's	$2.60 \pm 0.91$	$3.23 \pm 1.31$	$3.14 \pm 0.81$	$3.40 \pm 0.31$	$3.42 \pm 0.92$
Mean Difference	$\Lambda = .96, \eta^2 = .04$	0.15	-0.36	-0.13	-0.59	-0.24
Univariate Comparison		$F(1, 338) = .42, p = .517, \eta^2 = .001$	$F(1, 338) = 2.30, p = .130, \eta^2 = .01$	$F(1, 338) = .56, p = .456, \eta^2 = .002$	$F(1, 338) = 11.45, p = .001, \eta^2 = .03$	$F(1, 338) = 1.31, p = .254, \eta^2 = .004$
<b>Distracter</b>	<b>Multivariate Comparison</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 311$ )	$F(5, 334) = 3.35$ ,	$2.44 \pm 0.72$	$3.56 \pm 0.76$	$3.28 \pm 0.56$	$3.99 \pm 0.54$	$3.68 \pm 0.63$
Yes ( $n = 29$ )	$p = .006$ ; Wilk's	$2.62 \pm 0.71$	$3.78 \pm 0.54$	$3.18 \pm 0.61$	$3.74 \pm 0.62$	$3.29 \pm 0.63$
Mean Difference	$\Lambda = .95, \eta^2 = .05$	0.18	0.22	-0.10	-0.25	-0.39**
Univariate Comparison		$F(1, 338) = 1.70, p = .193, \eta^2 = .01$	$F(1, 338) = 2.30, p = .130, \eta^2 = .01$	$F(1, 338) = .91, p = .341, \eta^2 = .003$	$F(1, 338) = 5.44, p = .02, \eta^2 = .02$	$F(1, 338) = 10.60, p = .001, \eta^2 = .03$
<b>Malingerer</b>	<b>Multivariate Comparison</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 324$ )	$F(5, 334) = 2.48$ ,	$2.44 \pm 0.71$	$3.59 \pm 0.75$	$3.29 \pm 0.56$	$3.99 \pm 0.54$	$3.66 \pm 0.63$
Yes ( $n = 16$ )	$p = .032$ ; Wilk's	$2.70 \pm 0.93$	$3.38 \pm 0.69$	$2.93 \pm 0.58$	$3.63 \pm 0.56$	$3.37 \pm 0.60$
Mean Difference	$\Lambda = .96, \eta^2 = .04$	0.26	-0.21	-0.36	-0.36	-0.29
Univariate Comparison		$F(1, 338) = 1.89, p = .170, \eta^2 = .01$	$F(1, 338) = 1.24, p = .266, \eta^2 = .004$	$F(1, 338) = 6.16, p = .014, \eta^2 = .02$	$F(1, 338) = 6.74, p = .01, \eta^2 = .02$	$F(1, 338) = 3.20, p = .075, \eta^2 = .01$

Note. \*\* $p < .01$ , \*\*\* $p < .001$ . Mean differences = mean personality scores for role occupants – mean personality scores of non-occupants (i.e., positive numbers indicate higher scores for the self-identified role occupants than non-occupants). The possible range of the scores is 4 (1 to 5).

### Supplemental Material (Project One) 3.

#### Personality Differences between Self-Identified Role Occupants vs. Non-Role Occupants (Study 2)

Comedians	Multivariate Comparison	N	E	O	A	C
No ( $n = 124$ )	$F(5, 180) = 3.22$ ,	$23.29 \pm 7.09$	$32.05 \pm 6.76$	$26.34 \pm 5.91$	$31.75 \pm 6.60$	$32.45 \pm 7.19$
Yes ( $n = 62$ )	$p = .008$ ; Wilk's	$22.58 \pm 8.50$	$34.79 \pm 7.04$	$28.19 \pm 5.53$	$31.34 \pm 6.22$	$30.89 \pm 6.40$
Mean Difference	$\Lambda = .92, \eta^2 = .08$	-0.71	2.74	1.85	-0.41	-1.56
Univariate Comparison		$F(1, 184) = .36, p = .548, \eta^2 = .002$	$F(1, 184) = 6.62, p = .011, \eta^2 = .04$	$F(1, 184) = 4.25, p = .041, \eta^2 = .02$	$F(1, 184) = .17, p = .683, \eta^2 = .001$	$F(1, 184) = 2.10, p = .149, \eta^2 = .01$
Spark plug	Multivariate Comparison	N	E	O	A	C
No ( $n = 115$ )	$F(5, 178) = 2.92$ ,	$23.67 \pm 7.25$	$32.05 \pm 7.23$	$26.32 \pm 6.00$	$31.05 \pm 6.56$	$30.98 \pm 7.35$
Yes ( $n = 69$ )	$p = .015$ ; Wilk's	$22.13 \pm 7.78$	$34.51 \pm 5.83$	$27.94 \pm 5.32$	$32.58 \pm 6.20$	$33.48 \pm 6.16$
Mean Difference	$\Lambda = .92, \eta^2 = .08$	1.54	2.46	1.62	1.53	2.50
Univariate Comparison		$F(1, 182) = 1.84, p = .177, \eta^2 = .01$	$F(1, 182) = 5.72, p = .018, \eta^2 = .03$	$F(1, 182) = 3.42, p = .066, \eta^2 = .02$	$F(1, 182) = 2.43, p = .120, \eta^2 = .01$	$F(1, 182) = 5.59, p = .019, \eta^2 = .03$
Enforcer	Multivariate Comparison	N	E	O	A	C
No ( $n = 135$ )	$F(5, 178) = 1.80$ ,	$22.83 \pm 7.16$	$33.31 \pm 7.05$	$26.64 \pm 5.85$	$32.30 \pm 6.22$	$32.17 \pm 7.10$
Yes ( $n = 49$ )	$p = .114$ ; Wilk's	$23.67 \pm 8.33$	$32.43 \pm 6.54$	$28.06 \pm 5.74$	$29.88 \pm 6.56$	$32.10 \pm 6.38$
Mean Difference	$\Lambda = .95, \eta^2 = .05$	0.84	-0.88	1.42	-2.42	-0.07
Univariate Comparison		$F(1, 182) = .46, p = .500, \eta^2 = .003$	$F(1, 182) = .59, p = .445, \eta^2 = .003$	$F(1, 182) = 2.13, p = .146, \eta^2 = .01$	$F(1, 182) = 5.28, p = .023, \eta^2 = .03$	$F(1, 182) = .004, p = .953, \eta^2 < .001$
Mentor	Multivariate Comparison	N	E	O	A	C
No ( $n = 119$ )	$F(5, 182) = 1.87$ ,	$23.71 \pm 7.10$	$32.34 \pm 7.16$	$26.57 \pm 5.90$	$31.25 \pm 6.36$	$31.29 \pm 7.07$
Yes ( $n = 69$ )	$p = .102$ ; Wilk's	$22.25 \pm 8.18$	$34.36 \pm 6.02$	$27.91 \pm 5.45$	$32.22 \pm 6.52$	$33.17 \pm 6.62$
Mean Difference	$\Lambda = .95, \eta^2 = .05$	-1.46	2.02	1.34	0.97	1.88
Univariate Comparison		$F(1, 186) = 1.65, p = .201, \eta^2 = .01$	$F(1, 186) = 3.92, p = .049, \eta^2 = .02$	$F(1, 186) = 2.38, p = .124, \eta^2 = .01$	$F(1, 186) = .99, p = .321, \eta^2 = .01$	$F(1, 186) = 3.24, p = .074, \eta^2 = .02$

Note. \*\* $p < .01$ , \*\*\* $p < .001$ . Mean differences = mean personality scores for role occupants – mean personality scores of non-occupants (i.e., positive numbers indicate higher scores for the self-identified role occupants than non-occupants). The possible range of the scores is 48 (0 to 48).



### Supplemental Material (Project One) 3. Cont'd

Personality Differences between Self-Identified Role Occupants vs. Non-Role Occupants (Study 2)

<b>Non-verbal leader</b>	<b>Multivariate Comparison</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 87$ )	$F(5, 176) = 1.40$ ,	$23.40 \pm 6.32$	$33.30 \pm 6.90$	$26.98 \pm 6.33$	$31.53 \pm 6.41$	$30.84 \pm 7.33$
Yes ( $n = 95$ )	$p = .226$ ; Wilk's	$22.74 \pm 8.15$	$32.25 \pm 7.00$	$27.09 \pm 4.92$	$31.67 \pm 6.28$	$33.01 \pm 6.38$
Mean Difference	$\Lambda = .96, \eta^2 = .04$	-0.66	-1.05	0.11	0.14	2.17
Univariate Comparison		$F(1, 180) = .37, p = .542, \eta^2 = .002$	$F(1, 180) = 1.03, p = .312, \eta^2 = .01$	$F(1, 180) = .02, p = .888, \eta^2 < .001$	$F(1, 180) = .02, p = .878, \eta^2 < .001$	$F(1, 180) = 4.56, p = .034, \eta^2 = .03$
<b>Verbal leader</b>	<b>Multivariate Comparison</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 122$ )	$F(5, 178) = 4.09$ ,	$24.11 \pm 6.87$	$31.84 \pm 7.38$	$27.24 \pm 5.70$	$31.62 \pm 6.79$	$30.87 \pm 7.32$
Yes ( $n = 62$ )	$p = .002$ ; Wilk's	$20.53 \pm 7.92$	$34.69 \pm 5.64$	$26.23 \pm 5.80$	$31.66 \pm 5.75$	$34.19 \pm 5.45$
Mean Difference	$\Lambda = .90, \eta^2 = .10$	-3.58**	2.85**	-1.01	0.04	3.32**
Univariate Comparison		$F(1, 182) = 10.07, p = .002, \eta^2 = .05$	$F(1, 182) = 7.16, p = .008, \eta^2 = .04$	$F(1, 182) = 1.28, p = .259, \eta^2 = .01$	$F(1, 182) = .001, p = .970, \eta^2 < .001$	$F(1, 182) = 9.97, p = .002, \eta^2 = .05$
<b>Team player</b>	<b>Multivariate Comparison</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 66$ )	$F(5, 184) = 2.45$ ,	$23.50 \pm 6.85$	$31.45 \pm 7.64$	$26.36 \pm 6.26$	$30.06 \pm 7.41$	$30.39 \pm 7.65$
Yes ( $n = 124$ )	$p = .036$ ; Wilk's	$22.94 \pm 7.91$	$33.71 \pm 6.39$	$27.27 \pm 5.54$	$32.46 \pm 5.64$	$32.77 \pm 6.39$
Mean Difference	$\Lambda = .94, \eta^2 = .06$	-0.56	2.26	0.91	2.40	2.38
Univariate Comparison		$F(1, 188) = .23, p = .630, \eta^2 = .001$	$F(1, 188) = 4.68, p = .032, \eta^2 = .02$	$F(1, 188) = 1.06, p = .304, \eta^2 = .01$	$F(1, 188) = 6.23, p = .013, \eta^2 = .03$	$F(1, 188) = 5.61, p = .024, \eta^2 = .03$
<b>Star player</b>	<b>Multivariate Comparison</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 140$ )	$F(5, 175) = 2.60$ ,	$23.15 \pm 7.65$	$32.87 \pm 6.94$	$27.30 \pm 5.95$	$32.56 \pm 6.37$	$32.06 \pm 7.20$
Yes ( $n = 41$ )	$p = .027$ ; Wilk's	$22.24 \pm 7.13$	$33.46 \pm 6.67$	$26.34 \pm 4.92$	$28.78 \pm 5.90$	$31.41 \pm 6.31$
Mean Difference	$\Lambda = .93, \eta^2 = .07$	-0.91	0.59	-0.96	-3.78	-0.65
Univariate Comparison		$F(1, 179) = .46, p = .499, \eta^2 = .003$	$F(1, 179) = .24, p = .629, \eta^2 = .001$	$F(1, 179) = .89, p = .348, \eta^2 = .01$	$F(1, 179) = 11.52, p = .001, \eta^2 = .06$	$F(1, 179) = .27, p = .607, \eta^2 = .001$

Note. \*\* $p < .01$ , \*\*\* $p < .001$ . Mean differences = mean personality scores for role occupants – mean personality scores of non-occupants (i.e., positive numbers indicate higher scores for the self-identified role occupants than non-occupants). The possible range of the scores is 48 (0 to 48).

### Supplemental Material (Project One) 3. Cont'd

Personality Differences between Self-Identified Role Occupants vs. Non-Role Occupants (Study 2).

<b>Social convener</b>	<b>Multivariate Comparison</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 141$ )	$F(5, 177) = 2.92$ ,	$23.08 \pm 7.75$	$32.09 \pm 7.17$	$26.45 \pm 5.69$	$31.52 \pm 6.20$	$31.79 \pm 7.32$
Yes ( $n = 42$ )	$p = .015$ ; Wilk's	$23.55 \pm 7.22$	$36.12 \pm 5.13$	$28.24 \pm 5.95$	$32.55 \pm 7.21$	$32.40 \pm 5.38$
Mean Difference	$\Lambda = .92, \eta^2 = .08$	0.47	4.03	1.79	1.03	0.61
Univariate Comparison		$F(1, 181) = .12, p = .727, \eta^2 = .001$	$F(1, 181) = 11.47, p = .001, \eta^2 = .06$	$F(1, 181) = 3.11, p = .079, \eta^2 = .02$	$F(1, 181) = .82, p = .368, \eta^2 = .004$	$F(1, 181) = .26, p = .613, \eta^2 = .001$
<b>Cancer</b>	<b>Multivariate Comparison</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 177$ )	N/A	$23.16 \pm 7.50$	$33.01 \pm 6.95$	$27.21 \pm 5.70$	$31.77 \pm 6.35$	$31.89 \pm 7.07$
Yes ( $n = 2$ )		$27.00 \pm 2.83$	$35.50 \pm 0.71$	$25.00 \pm 2.83$	$34.50 \pm 0.71$	$25.50 \pm 2.12$
Mean Difference		3.84	2.49	-2.21	2.73	-6.39
Univariate Comparison						
<b>Distracter</b>	<b>Multivariate Comparison</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 164$ )	$F(5, 169) = 4.67$ ,	$23.10 \pm 7.47$	$32.68 \pm 6.98$	$27.10 \pm 5.70$	$31.91 \pm 6.40$	$32.56 \pm 6.83$
Yes ( $n = 11$ )	$p = .001$ ; Wilk's	$26.00 \pm 8.32$	$37.82 \pm 5.19$	$25.91 \pm 7.74$	$32.64 \pm 7.67$	$26.00 \pm 7.29$
Mean Difference	$\Lambda = .88, \eta^2 = .12$	2.90	5.14	-1.19	0.73	-6.56**
Univariate Comparison		$F(1, 173) = 1.53, p = .217, \eta^2 = .01$	$F(1, 173) = 5.73, p = .018, \eta^2 = .03$	$F(1, 173) = .43, p = .514, \eta^2 = .002$	$F(1, 173) = .13, p = .719, \eta^2 = .001$	$F(1, 173) = 9.44, p = .002, \eta^2 = .05$
<b>Malingerer</b>	<b>Multivariate Comparison</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
No ( $n = 176$ )	N/A	$23.03 \pm 7.54$	$32.99 \pm 6.93$	$27.15 \pm 5.92$	$31.75 \pm 6.37$	$32.08 \pm 6.99$
Yes ( $n = 0$ )						
Mean Difference						
Univariate Comparison						

Note. \*\* $p < .01$ , \*\*\* $p < .001$ . Mean differences = mean personality scores for role occupants – mean personality scores of non-occupants (i.e., positive numbers indicate higher scores for the self-identified role occupants than non-occupants). The possible range of the scores is 48 (0 to 48).

**Supplemental Material (Project One) 4.**

Bivariate Correlations between Percentages of Teammate Nominations and Athletes' Big Five Personality Dimensions (Study 2)

<b>Role Name</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
<b>Comedian</b>	-.06	.22**	.04	-.02	-.11
<b>Spark plug</b>	-.17	.09	.001	-.01	.10
<b>Enforcer</b>	-.08	.01	.11	-.10	-.04
<b>Mentor</b>	-.19**	.05	-.002	-.06	.09
<b>Non-verbal leader</b>	-.09	-.02	.08	.01	.08
<b>Verbal leader</b>	-.19**	.08	.02	.01	.06
<b>Team player</b>	-.10	.11	.05	.11	.07
<b>Star player</b>	-.16	.01	-.04	-.22**	-.10
<b>Social convener</b>	-.09	.13	-.08	-.03	.05
<b>Cancer</b>	.12	.04	-.14	-.05	.001
<b>Distracter</b>	.16	.16	.04	.03	-.22**
<b>Malingerer</b>	.18	-.08	.14	.14	-.003

\*\*  $p < .01$

*Notes.* N = Neuroticism, E = Extraversion, O = Openness to Experience, A = Agreeableness, C = Conscientiousness

### Supplemental Material (Project One) 5.

Bivariate Correlations among Percentages of Teammate-Nominations across Roles (Study 2)

Role name	1	2	3	4	5	6	7	8	9	10	11	12
1. Comedian	-											
2. Spark plug	.12	-										
3. Enforcer	.09	.38***	-									
4. Mentor	.06	.63***	.28***	-								
5. NVL <sup>a</sup>	.07	.56***	.27***	.53***	-							
6. VL <sup>b</sup>	.11	.82***	.53***	.57***	.55***	-						
7. Team player	.23***	.49***	.32***	.40***	.70***	.44***	-					
8. Star player	.22**	.50***	.42***	.42***	.49***	.49***	.37***	-				
9. Social convener	.37***	.67***	.30***	.39***	.38***	.64***	.43***	.40***	-			
10. Cancer	.11	-.01	.09	-.001	-.001	.02	-.01	.06	.06	-		
11. Distracter	.42***	-.12	.04	-.12	-.16	-.07	-.07	.02	.001	.25***	-	
12. Malingerer	-.10	-.11	.16	.09	-.12	.01	-.15	-.06	-.10	.16	.09	-

<sup>a</sup>Non-verbal leader

<sup>b</sup>Verbal leader

\*\* $p < .01$

\*\*\* $p < .001$

**SUPPLEMENTAL MATERIALS (PROJECT TWO)**

### Supplemental Material (Project Two) 1.

#### Participant Retention

Team (sport)	Gender	Roster Size	T1	T2	T3	T2/T3	T1/T2/T3
Team 1 (Soccer)	Female	28	18	12	12	8	7
Team 2 (Field Hockey)	Female	26	22	21	23	21	19
Team 3 (Soccer)	Female	17	16	11	13	9	8
Team 4 (Ball Hockey)	Male	25	16	13	11	11	10
Team 5 (Soccer)	Female	21	13	9	12	9	6
Team 6 (Ice Hockey)	Female	27	26	25	25	24	24
Team 7 (Basketball)	Male	15	10	9	9	8	7
Team 8 (Basketball)	Male	17	16	16	16	15	14
Team 9 (Basketball)	Male	14	13	12	11	11	11
Team 10 (Softball)	Female	14	10	12	12	11	9
Team 11 (Volleyball)	Female	15	14	12	13	11	10
Team 12 (Basketball)	Male	13	11	10	9	8	8
Team 13 (Basketball)	Female	19	17	13	17	13	12
Team 14 (Basketball)	Male	16	13	14	14	14	13
Team 15 (Baseball)	Male	40	27	31	25	20	14
Team 16 (Basketball)	Male	12	10	11	11	10	10
Overall		319	252	231	233	203	182

*Note.* The overall total roster size (N = 319) exceeds the total number of participants (N = 286) as some athletes listed on the roster declined to participate/were not present during data collection at any time point. For analysis pertaining to examining personality at T1 and role occupancy at T2 (operationalized as percentage of received teammate-role nominations), data from 252 athletes were used (i.e., number of athletes who provided personality scores at T1). Athletes' presence at T2 did not influence this analysis as all athletes on the roster had a chance to be nominated by their teammates as role occupants. For analysis pertaining to informal roles at T2 (operationalized as percentage of outgoing teammate-role nominations) and outcome perceptions at T3, data from 203 athletes were used (i.e., number of athletes present at both T2 and T3).

## Supplemental Material (Project Two) 2.

### Descriptive Statistics for Measured Variables

Variable Name	Mean
Personality Dimensions	
Extraversion	3.46 ( <i>SD</i> = 0.79)
Agreeableness	3.98 ( <i>SD</i> = 0.53)
Conscientiousness	3.68 ( <i>SD</i> = 0.59)
Neuroticism	2.60 ( <i>SD</i> = 0.71)
Openness to Experience	3.23 ( <i>SD</i> = 0.53)
Group Cohesion Dimensions	
Attractions to Group – Social	7.33 ( <i>SD</i> = 1.45)
Attractions to Group – Task	7.13 ( <i>SD</i> = 1.29)
Group Integration – Social	6.79 ( <i>SD</i> = 1.74)
Group Integration – Task	7.14 ( <i>SD</i> = 1.32)
Athlete Satisfaction Dimensions	
Team Performance	4.55 ( <i>SD</i> = 1.49)
Team Task Contribution	5.12 ( <i>SD</i> = 1.15)
Team Social Contribution	5.45 ( <i>SD</i> = 1.13)
Team Integration	5.42 ( <i>SD</i> = 1.06)
Personal Dedication	5.89 ( <i>SD</i> = 0.82)
Intentions to Return	
To Sport	8.24 ( <i>SD</i> = 1.55)
To Team	7.97 ( <i>SD</i> = 1.83)

*Note.*  $N_{T1} = 252$  (personality dimensions) and  $N_{T3} = 233$  (outcome dimensions). Personality dimensions were based on a 1 to 5 scale, group cohesion dimensions and the intentions to return items were based on a 1 to 9 scale, and athlete satisfaction dimensions were based on a 1 to 7 scale.

**Supplemental Material (Project Two) 3.**  
**Informal Role Occupancy**

<b>Name</b>	<b>Total</b>	<b>Per team</b>
Comedian	24 (8.4%)	1.50
Spark plug	17 (5.9%)	1.06
Enforcer	15 (5.2%)	0.94
Mentor	21 (7.3%)	1.31
Informal leader – non verbal	15 (5.2%)	0.94
Informal leader – verbal	15 (5.2%)	0.94
Team player	16 (5.6%)	1.00
Star player	21 (7.3%)	1.31
Social convener	20 (7.0%)	1.25
Cancer	3 (1.1%)	0.19
Distracter	4 (1.4%)	0.25
Malingerer	3 (1.1%)	0.19

*Note.* The numbers indicate those athletes who received 50% or more of their teammates' nominations as role occupants. The percentages are out of the total number of participants ( $N = 286$ ).



**Supplemental Material (Project Two) 4.**

Bivariate Correlations among Percentages of Received Teammate-Nominations across Roles

Role name	1	2	3	4	5	6	7	8	9	10	11	12
13. Comedian	-											
14. Spark plug	.25***	-										
15. Enforcer	.24***	.49***	-									
16. Mentor	.17**	.81***	.38***	-								
17. NVL <sup>a</sup>	.15**	.66***	.38***	.62***	-							
18. VL <sup>b</sup>	.34***	.82***	.50***	.85***	.62***	-						
19. Team player	.18**	.61***	.51***	.47***	.64***	.53***	-					
20. Star player	.30***	.54***	.37***	.50***	.55***	.54***	.33***	-				
21. Social convener	.35***	.60***	.45***	.53***	.40***	.67***	.34***	.33***	-			
22. Cancer	.13	-.03	.14	-.05	-.06	.06	-.10	.12	.13	-		
23. Distracter	.41***	.01	.03	-.05	-.07	.07	-.10	.06	.14	.45***	-	
24. Malingerer	.09	-.02	.07	-.03	-.11	.04	-.07	.02	.01	.35***	.25***	-

<sup>a</sup>Non-verbal leader<sup>b</sup>Verbal leader\*\*  
 $p < .01$ \*\*\*  
 $p < .001$

**Supplemental Material (Project Two) 5.**

Bivariate Correlations between Big Five Personality Dimensions and Percentages of Received Teammate-Nominations

<b>Role Name</b>	<b>N</b>	<b>E</b>	<b>O</b>	<b>A</b>	<b>C</b>
<b>Comedian</b>	.02	.34***	.10	-.08	-.13
<b>Spark plug</b>	.05	.18**	.01	.08	.08
<b>Enforcer</b>	-.02	.17**	.03	-.09	.07
<b>Mentor</b>	.07	.17	.03	.03	.07
<b>Non-verbal leader</b>	.01	.08	-.002	.05	.17**
<b>Verbal leader</b>	.04	.27***	.08	.03	.09
<b>Team player</b>	-.02	.11	-.001	.08	.21***
<b>Star player</b>	.13	.17**	-.01	-.09	-.11
<b>Social convener</b>	.04	.25***	.10	.09	<.01
<b>Cancer</b>	.20**	.21***	.06	-.21**	-.02
<b>Distracter</b>	.06	.30***	.09	-.10	-.22***
<b>Malingerer</b>	.18**	.08	.08	-.07	-.03

*Note.* \*\*  $p < .01$  \*\*\*  $p < .001$ .

N = Neuroticism, E = Extraversion, O = Openness to Experience, A = Agreeableness, C = Conscientiousness

### Supplemental Material (Project Two) 6.

Personality Predicting Received Teammate-Nominations as Role Occupants (Including Non-Significant Results)

Outcome		Coefficients				Overall Model		
Comedian %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	Bootstrap <i>CI</i>	Adj. <i>R</i> <sup>2</sup>	<i>F</i>	<i>p</i>
Model 1	Extraversion <sup>#</sup>	.10	<i>t</i> (221) = 5.68	<.001	[.06, .13]	.14	<i>F</i> (2, 221) = 18.41	<.001
	Conscientiousness <sup>#</sup>	-.06	<i>t</i> (221) = -2.56	.011	[-.11, -.01]			
Model 2	Extraversion <sup>#</sup>	.10	<i>t</i> (218) = 5.67	<.001	[.06, .13]	.14	<i>F</i> (5, 218) = 7.95	<.001
	Conscientiousness <sup>#</sup>	-.05	<i>t</i> (218) = -2.00	.047	[-.10, .004]			
	Agreeableness	-.03	<i>t</i> (218) = -1.05	.295	[-.09, .03]			
	Neuroticism	.01	<i>t</i> (218) = .31	.756	[-.03, .04]			
	Openness	.03	<i>t</i> (218) = 1.30	.195	[-.01, .08]			
Spark plug %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	Bootstrap <i>CI</i>	Adj. <i>R</i> <sup>2</sup>	<i>F</i>	<i>p</i>
Model 1	Extraversion	.04	<i>t</i> (218) = 2.61	.010	[.01, .08]	.02	<i>F</i> (5, 218) = 2.04	.074
	Conscientiousness	.02	<i>t</i> (218) = .95	.346	[-.02, .07]			
	Agreeableness	.02	<i>t</i> (218) = .82	.411	[-.03, .08]			
	Neuroticism	.02	<i>t</i> (218) = 1.30	.197	[-.01, .06]			
	Openness	-.002	<i>t</i> (218) = -.08	.938	[-.05, .05]			
Enforcer %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	Bootstrap <i>CI</i>	Adj. <i>R</i> <sup>2</sup>	<i>F</i>	<i>p</i>
Model 1	Extraversion	.04	<i>t</i> (218) = 2.64	.009	[.01, .07]	.05	<i>F</i> (5, 218) = 2.36	.041
	Conscientiousness	.03	<i>t</i> (218) = 1.46	.146	[-.01, .07]			
	Agreeableness	-.05	<i>t</i> (218) = -2.03	.044	[-.10, -.003]			
	Neuroticism	-.003	<i>t</i> (218) = -.18	.862	[-.03, .03]			
	Openness	.01	<i>t</i> (218) = .45	.654	[-.04, .05]			

*Note.* <sup>#</sup>Hypothesized associations. Unstandardized *B* values are reported. Bias-corrected and accelerated bootstrap (*N* = 5,000) 95% confidence intervals are reported.

### Supplemental Material (Project Two) 6. Cont'd

Personality Predicting Received Teammate-Nominations as Role Occupants (Including Non-Significant Results)

Outcome		Coefficients				Overall Model		
Mentor %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	<i>Adj. R<sup>2</sup></i>	<i>F</i>	<i>p</i>
Model 1	Neuroticism <sup>#</sup>	.02	<i>t</i> (222) = .97	.334	[-.02, .07]	<.001	<i>F</i> (1, 222) = .94	.334
Model 2	Neuroticism <sup>#</sup>	.03	<i>t</i> (218) = 1.44	.150	[-.02, .08]	.02	<i>F</i> (5, 218) = 1.90	.096
	Extraversion	.05	<i>t</i> (218) = 2.55	.012	[.01, .08]			
	Agreeableness	.01	<i>t</i> (218) = .15	.877	[-.06, .07]			
	Conscientiousness	.03	<i>t</i> (218) = 1.06	.291	[-.03, .08]			
	Openness	.01	<i>t</i> (218) = .35	.731	[-.04, .06]			
Non-verbal leader %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	<i>Adj. R<sup>2</sup></i>	<i>F</i>	<i>p</i>
Model 1	Neuroticism	.01	<i>t</i> (218) = .69	.493	[-.02, .05]	.02	<i>F</i> (5, 218) = 1.69	.139
	Extraversion	.02	<i>t</i> (218) = 1.11	.270	[-.01, .05]			
	Agreeableness	<.001	<i>t</i> (218) = .01	.995	[-.05, .05]			
	Conscientiousness	.05	<i>t</i> (218) = 2.50	.013	[.02, .10]			
	Openness	-.001	<i>t</i> (218) = -.06	.954	[-.05, .04]			
Verbal leader %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	<i>Adj. R<sup>2</sup></i>	<i>F</i>	<i>p</i>
Model 1	Neuroticism <sup>#</sup>	.10	<i>t</i> (222) = .57	.568	[-.02, .04]	-.003	<i>F</i> (1, 222) = .33	.568
Model 2	Neuroticism <sup>#</sup>	.02	<i>t</i> (218) = 1.21	.227	[-.01, .06]	.07	<i>F</i> (2, 218) = 4.25	.001
	Extraversion	.06	<i>t</i> (218) = 4.16	<.001	[.04, .09]			
	Agreeableness	-.003	<i>t</i> (218) = -.10	.918	[-.05, .04]			
	Conscientiousness	.03	<i>t</i> (218) = 1.19	.234	[-.02, .07]			
	Openness	.02	<i>t</i> (218) = .95	.345	[-.02, .06]			

*Note.* <sup>#</sup>Hypothesized associations. Unstandardized *B* values are reported. Bias-corrected and accelerated bootstrap (*N* = 5,000) 95% confidence intervals are reported.

### Supplemental Material (Project Two) 6. Cont'd

Personality Predicting Received Teammate-Nominations as Role Occupants (Including Non-Significant Results)

Outcome		Coefficients				Overall Model		
Team player %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	<i>Adj. R<sup>2</sup></i>	<i>F</i>	<i>p</i>
Model 1	Neuroticism	.01	$t(218) = .46$	.644	[-.02, .04]	.03	$F(5, 218) = 2.59$	.026
	Extraversion	.02	$t(218) = 1.53$	.127	[-.01, .05]			
	Agreeableness	.002	$t(218) = .10$	.918	[-.04, .04]			
	Conscientiousness	.06	$t(218) = 2.96$	.003	[.02, .10]			
	Openness	-.003	$t(218) = -.15$	.884	[-.05, .04]			
Star player %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	<i>Adj. R<sup>2</sup></i>	<i>F</i>	<i>p</i>
Model 1	Agreeableness <sup>#</sup>	-.04	$t(222) = -1.35$	.179	[-.09, .01]	.004	$F(1, 222) = 1.82$	.179
Model 2	Agreeableness <sup>#</sup>	-.02	$t(218) = -.75$	.451	[-.08, .03]	.05	$F(5, 218) = 3.13$	.010
	Extraversion	.05	$t(218) = 3.03$	.003	[.02, .08]			
	Conscientiousness	-.03	$t(218) = -1.26$	.208	[-.09, .03]			
	Neuroticism	.04	$t(218) = 1.88$	.062	[.003, .08]			
	Openness	-.01	$t(218) = -.33$	.741	[-.06, .04]			
Social convener %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	<i>Adj. R<sup>2</sup></i>	<i>F</i>	<i>p</i>
	Extraversion	.06	$t(218) = 3.74$	<.001	[.03, .09]	.06	$F(5, 218) = 3.76$	.003
	Agreeableness	.03	$t(218) = 1.22$	.222	[-.02, .08]			
	Conscientiousness	-.01	$t(218) = -.42$	.677	[-.06, .04]			
	Neuroticism	.02	$t(218) = 1.27$	.205	[-.01, .06]			
	Openness	.03	$t(218) = 1.17$	.244	[-.02, .08]			

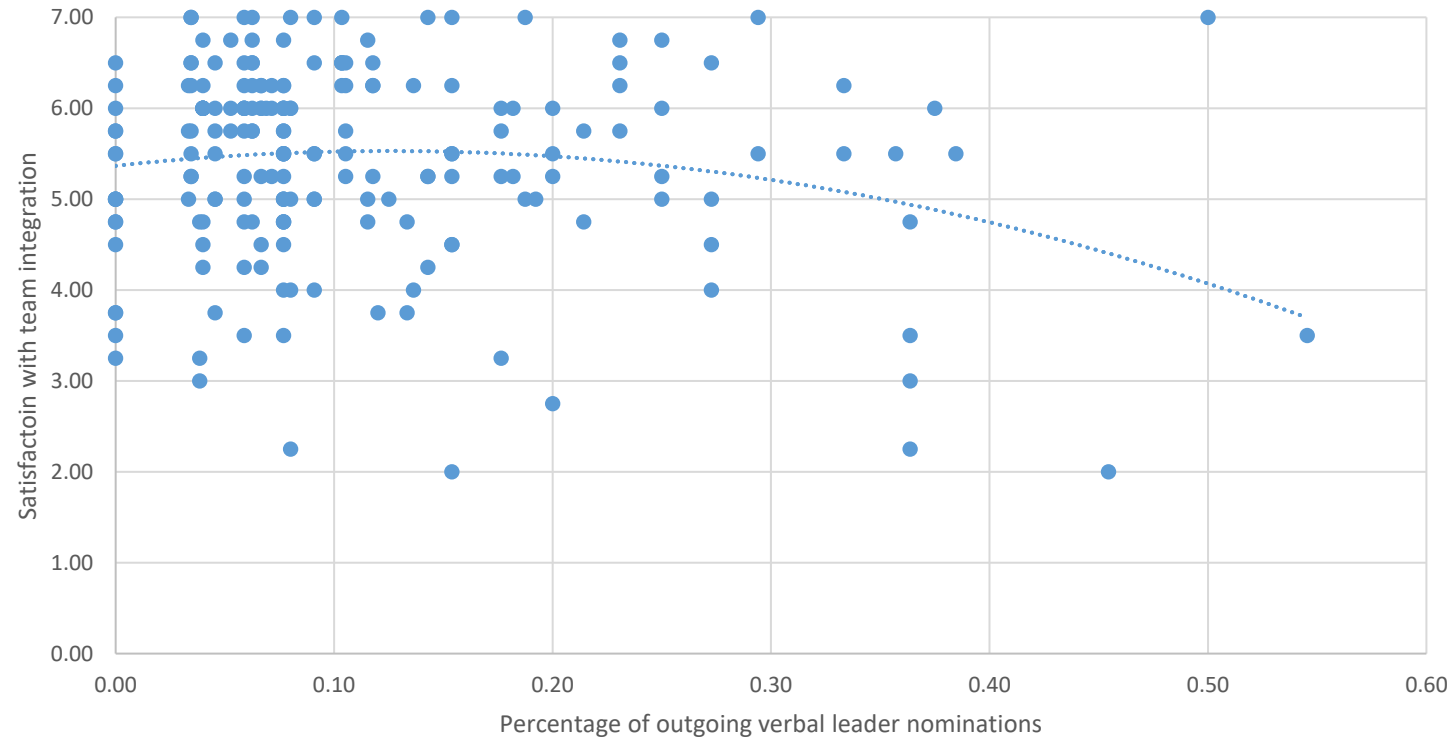
*Note.* <sup>#</sup>Hypothesized associations. Unstandardized *B* values are reported. Bias-corrected and accelerated bootstrap ( $N = 5,000$ ) 95% confidence intervals are reported.

### Supplemental Material (Project Two) 6. Cont'd

Personality Predicting Received Teammate-Nominations as Role Occupants (Including Non-Significant Results)

Outcome		Coefficients				Overall Model		
Cancer %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	<i>Adj. R<sup>2</sup></i>	<i>F</i>	<i>p</i>
Model 1	Extraversion	.03	$t(218) = 3.88$	<.001	[.01, .04]	.11	$F(5, 218) = 6.76$	<.001
	Agreeableness	-.03	$t(218) = -3.07$	.002	[-.06, -.01]			
	Conscientiousness	.01	$t(218) = .90$	.370	[-.01, .03]			
	Neuroticism	.02	$t(218) = 2.90$	.004	[.01, .04]			
	Openness	.01	$t(218) = .81$	.420	[-.01, .03]			
Distracter %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	<i>Adj. R<sup>2</sup></i>	<i>F</i>	<i>p</i>
Model 1	Extraversion <sup>#</sup>	.04	$t(221) = 5.06$	<.001	[.02, .05]	.14	$F(2, 221) = 18.87$	<.001
	Conscientiousness <sup>#</sup>	-.04	$t(221) = -3.85$	<.001	[-.07, -.01]			
Model 2	Extraversion <sup>#</sup>	.04	$t(218) = 5.09$	<.001	[.02, .05]	.14	$F(5, 218) = 8.04$	<.001
	Conscientiousness <sup>#</sup>	-.03	$t(218) = -3.21$	.002	[-.07, -.003]			
	Agreeableness	-.01	$t(218) = -.92$	.359	[-.03, .01]			
	Neuroticism	.01	$t(218) = .64$	.524	[-.01, .02]			
	Openness	.01	$t(218) = 1.06$	.293	[-.01, .03]			
Malingerer %	Predictor(s)	<i>B</i>	<i>t</i>	<i>p</i>	<i>Bootstrap CI</i>	<i>Adj. R<sup>2</sup></i>	<i>F</i>	<i>p</i>
Model 1	Extraversion	.01	$t(218) = 1.50$	.136	[-.004, .03]	.03	$F(5, 218) = 2.27$	.048
	Agreeableness	-.01	$t(218) = -.59$	.559	[-.03, .02]			
	Conscientiousness	.001	$t(218) = .09$	.926	[-.02, .02]			
	Neuroticism	.02	$t(218) = 2.69$	.008	[.01, .04]			
	Openness	.01	$t(218) = 1.10$	.273	[-.01, .04]			

*Note.* <sup>#</sup>Hypothesized associations. Unstandardized *B* values are reported. Bias-corrected and accelerated bootstrap ( $N = 5,000$ ) 95% confidence intervals are reported.



**Supplemental Material (Project Two) 7. Relationship between Athlete Satisfaction with Team Integration and Percentage of Outgoing Verbal Leader Nominations.**

*Note.* Overall regression model: Adjusted  $R^2 = .03$ ,  $F(2, 197) = 4.08$ ,  $p = .018$ , the squared term for the percentage of outgoing nominations was statistically significant,  $B = -10.38$ ,  $t(197) = -2.06$ ,  $p = .041$ , 95% bootstrap CIs  $[-26.19, 2.86]$ . (Project Two).

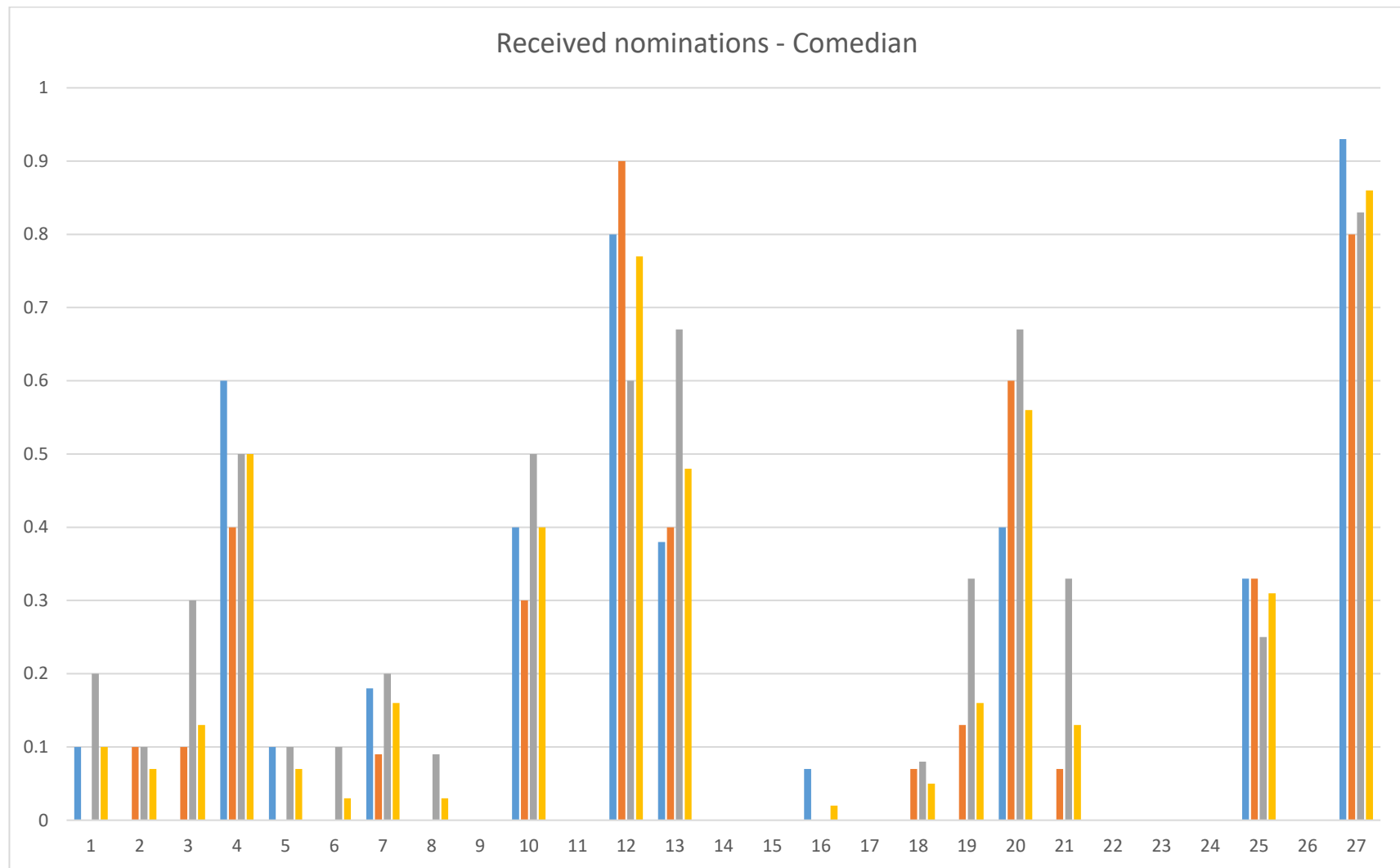
**Supplemental Material (Project Two) 8.****Descriptive Statistics for Outgoing Nominations for Informal Roles**

<b>Role Name</b>	<b>Mean percentage of teammates nominated</b>
<b>Comedian</b>	13.1% ( <i>SD</i> = 11.5%)
<b>Spark plug</b>	10.4% ( <i>SD</i> = 8.6%)
<b>Enforcer</b>	9.0% ( <i>SD</i> = 7.3%)
<b>Mentor</b>	10.9% ( <i>SD</i> = 9.1%)
<b>Non-verbal leader</b>	11.9% ( <i>SD</i> = 9.5%)
<b>Verbal leader</b>	10.6% ( <i>SD</i> = 9.6%)
<b>Team player</b>	14.5% ( <i>SD</i> = 14.7%)
<b>Star player</b>	10.6% ( <i>SD</i> = 8.4%)
<b>Social convener</b>	10.5% ( <i>SD</i> = 8.1%)
<b>Cancer</b>	4.0% ( <i>SD</i> = 5.6%)
<b>Distracter</b>	4.5% ( <i>SD</i> = 6.0%)
<b>Malingerer</b>	4.4% ( <i>SD</i> = 6.3%)

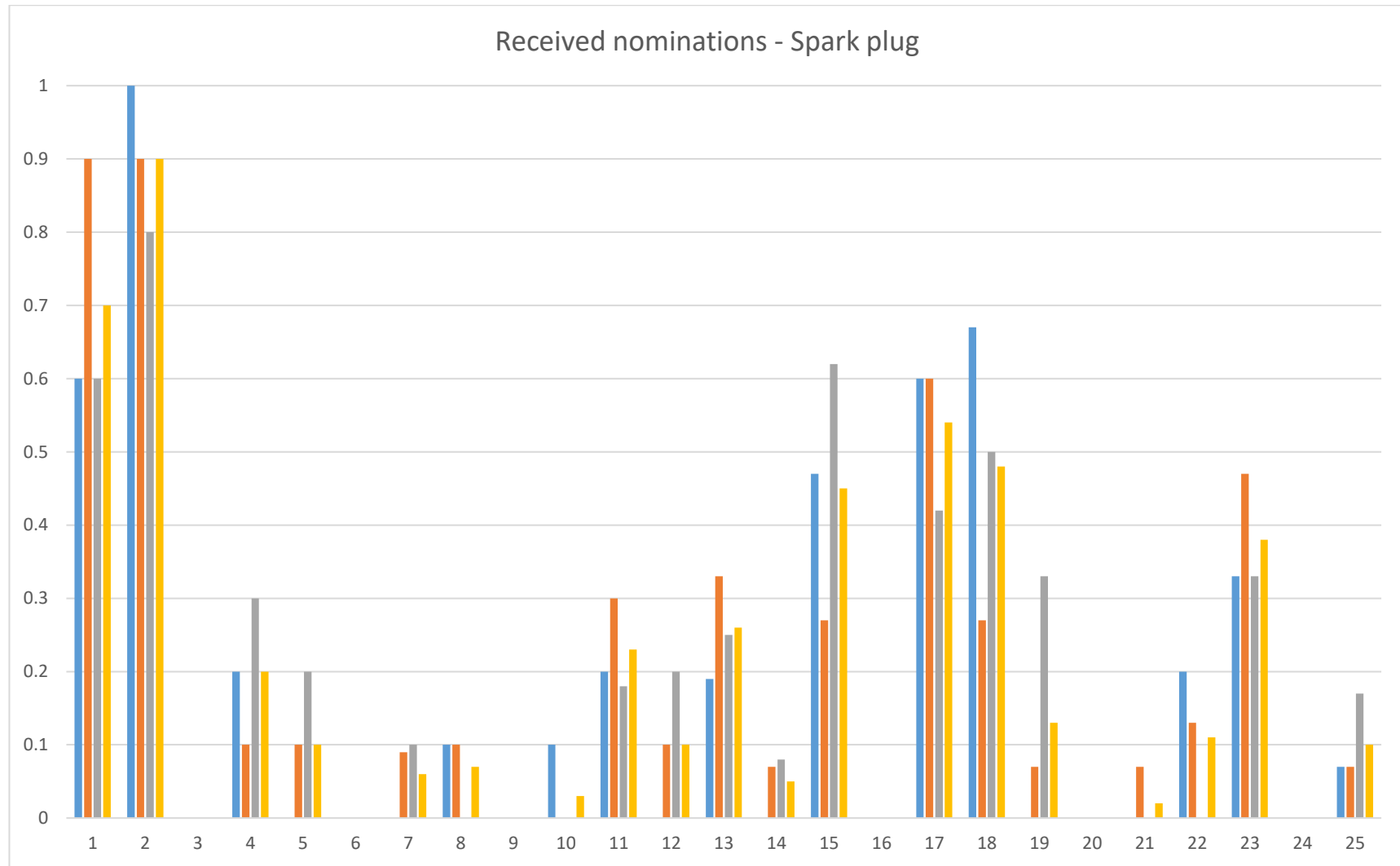
*Note.*  $N = 231$ . The percentage of outgoing nominations for each role was calculated by dividing the number of teammates nominated by the total number of teammates on the roster.



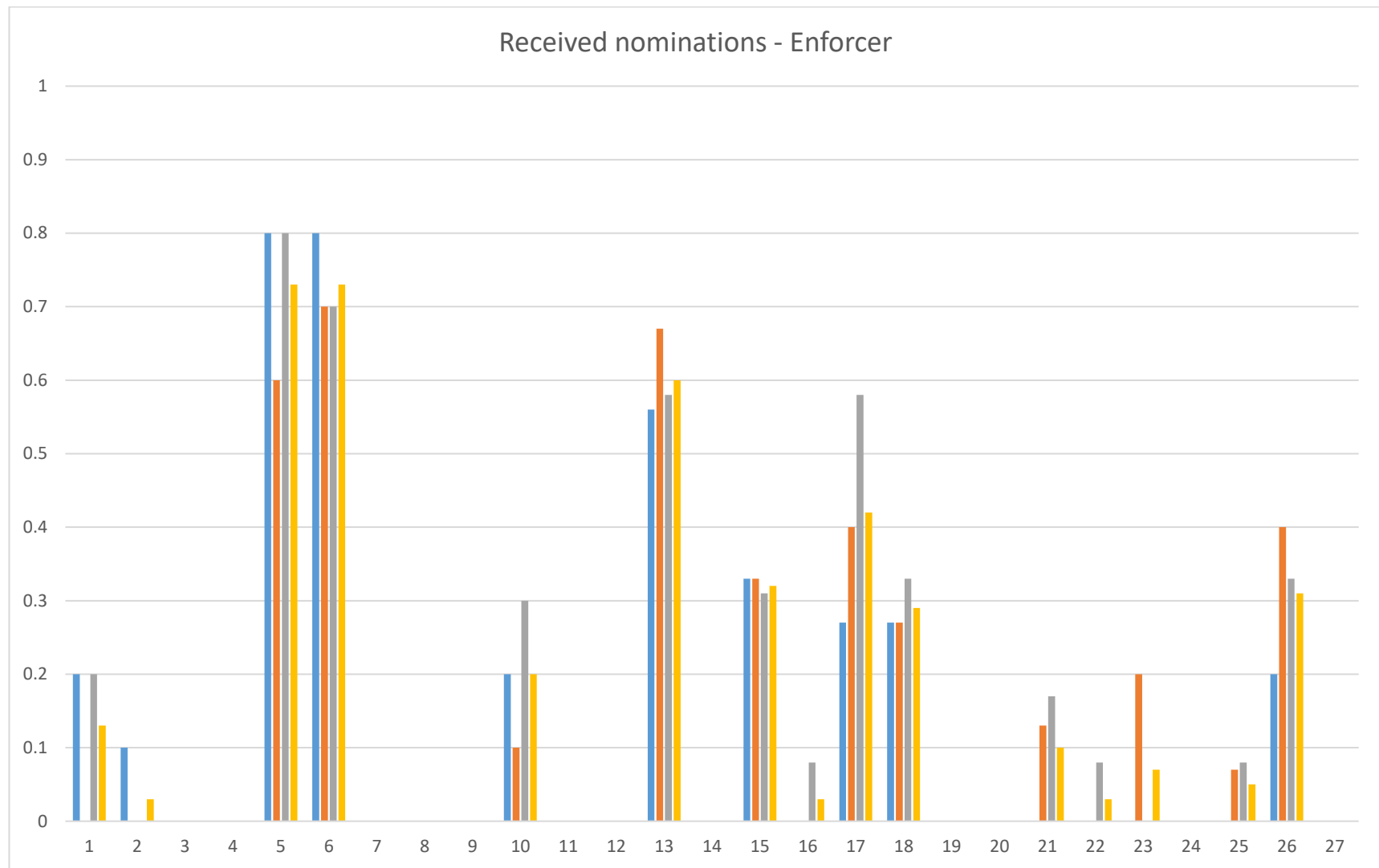
**SUPPLEMENTAL MATERIALS (PROJECT THREE)**



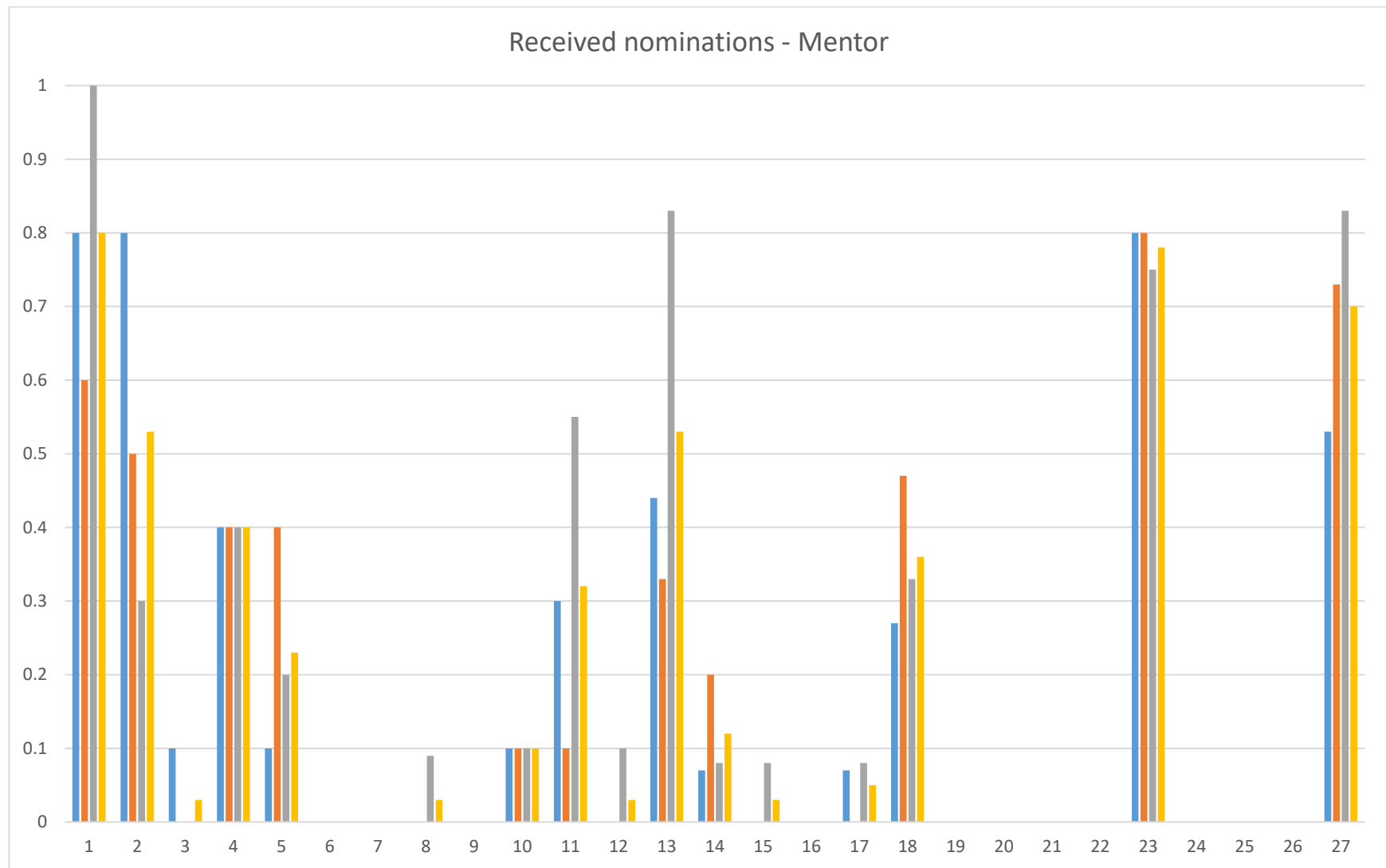
**Supplemental Material (Project Three) 1. Comedian Role Occupancy Summary.** For each athlete, the bars represent (from left to right) nominations at time 2, time 3, time 3, and overall mean across timepoints. Participant #4, #10, #12, #13, #20, #25, and #27 appear to occupy the comedian role.



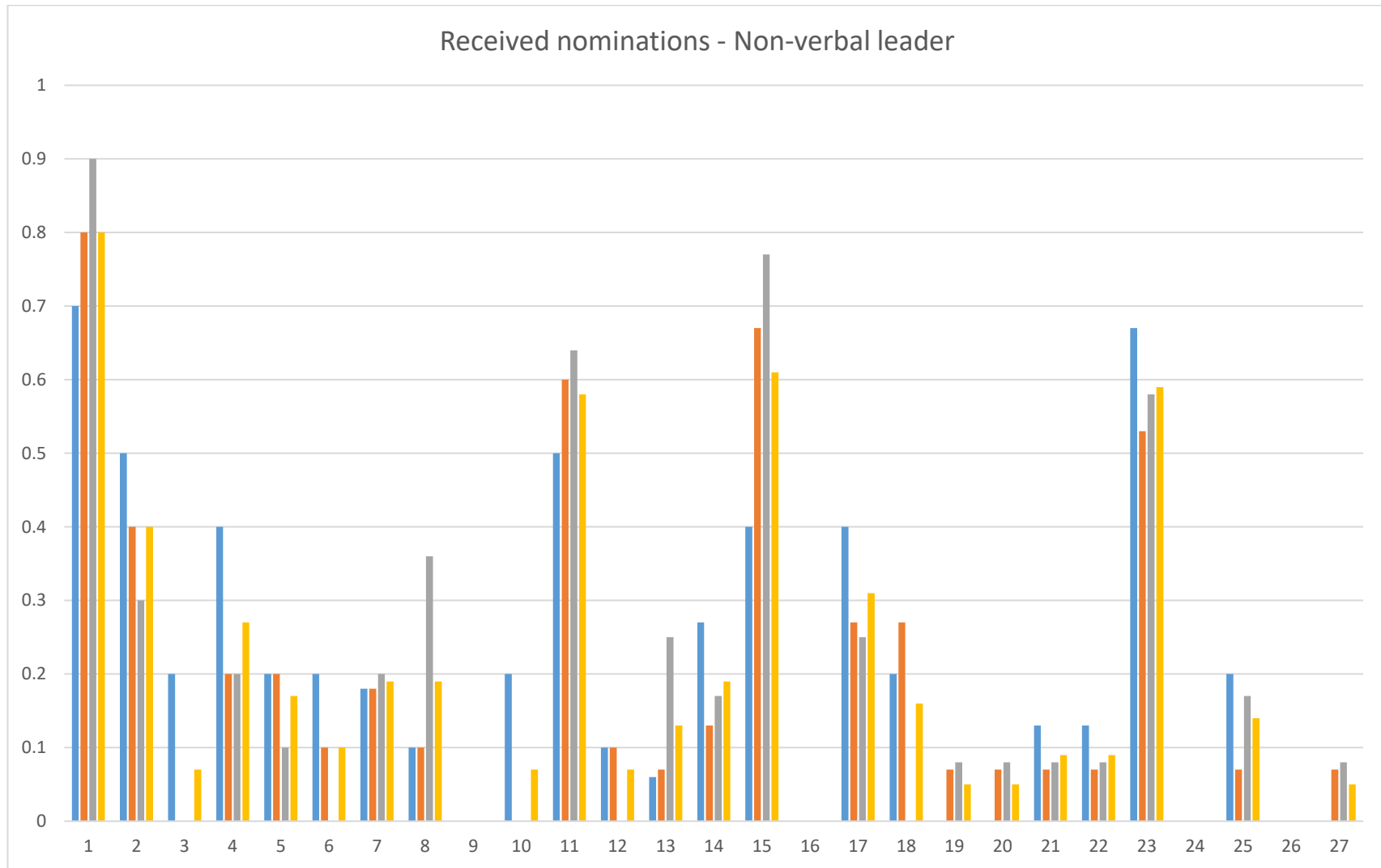
**Supplemental Material (Project Three) 2. Spark Plug Role Occupancy Summary.** For each athlete, the bars represent (from left to right) nominations at time 2, time 3, time 3, and overall mean across timepoints. Participant #1, #2, #15, #17, #18, and #23 appear to occupy the spark plug role.



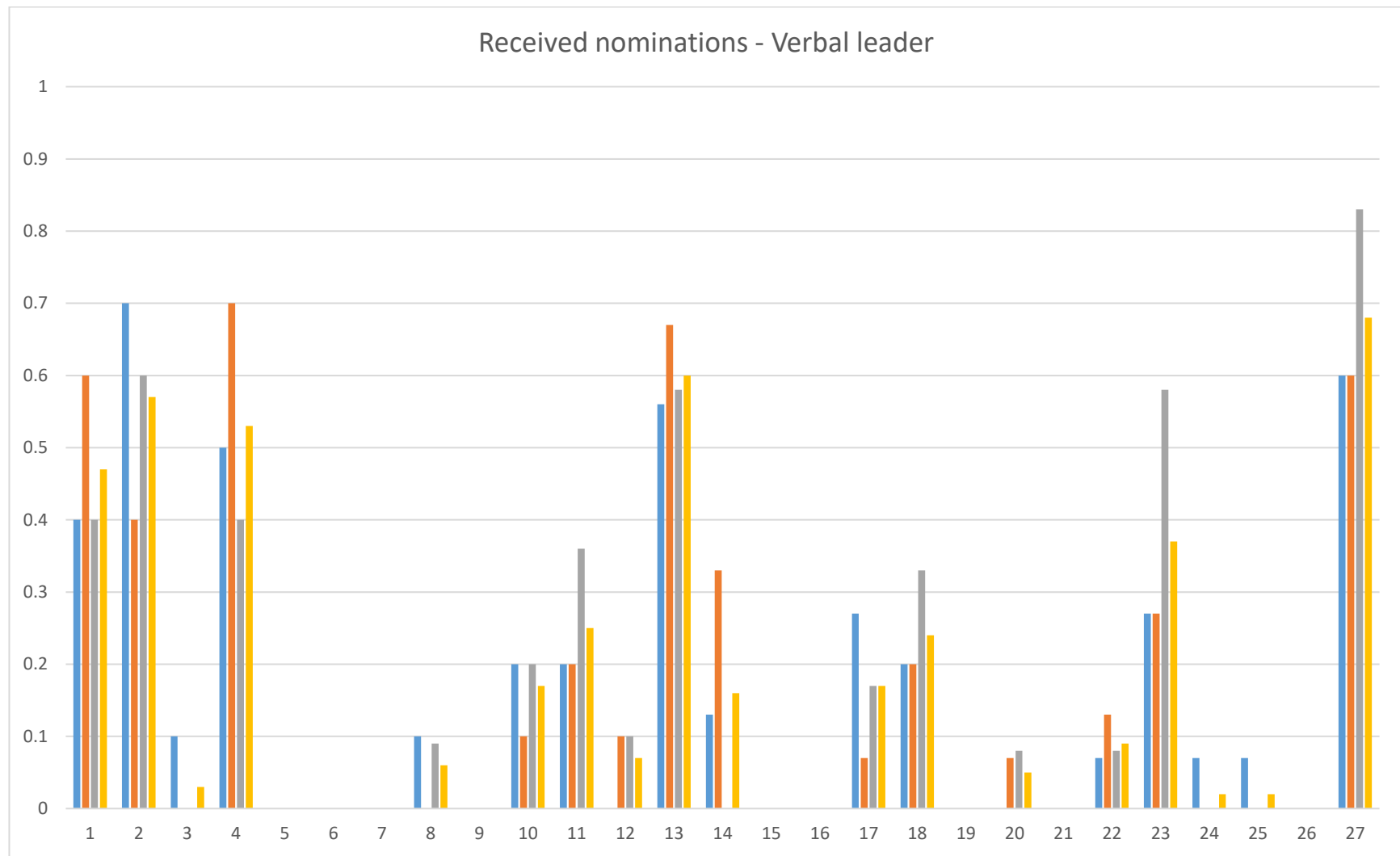
**Supplemental Material (Project Three) 3. Enforcer Role Occupancy Summary.** For each athlete, the bars represent (from left to right) nominations at time 2, time 3, time 3, and overall mean across timepoints. Participant #5, #6, #13, #15, #17, #18, and #26 appear to occupy the enforcer role.



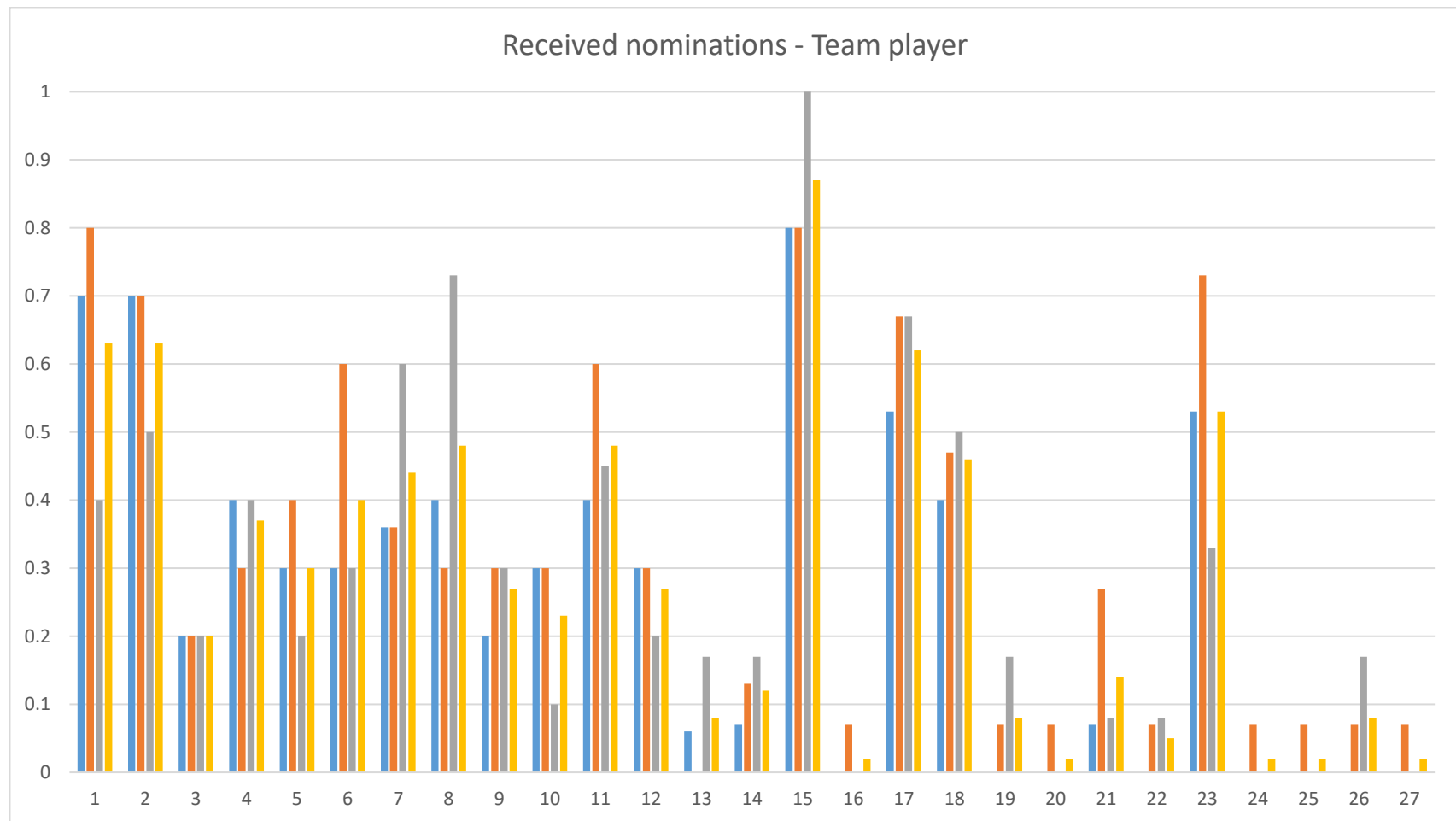
**Supplemental Material (Project Three) 4. Mentor Role Occupancy Summary.** For each athlete, the bars represent (from left to right) nominations at time 2, time 3, time 3, and overall mean across timepoints. Participant #1, #2, #4, #11, #13, #18, #23, and #27 appear to occupy the mentor role.



**Supplemental Material (Project Three) 5.** Non-verbal Informal Leader Role Occupancy Summary. For each athlete, the bars represent (from left to right) nominations at time 2, time 3, time 3, and overall mean across timepoints. Participant #1, #2, #11, #15, #17 and #23 appear to occupy the non-verbal informal leader role.

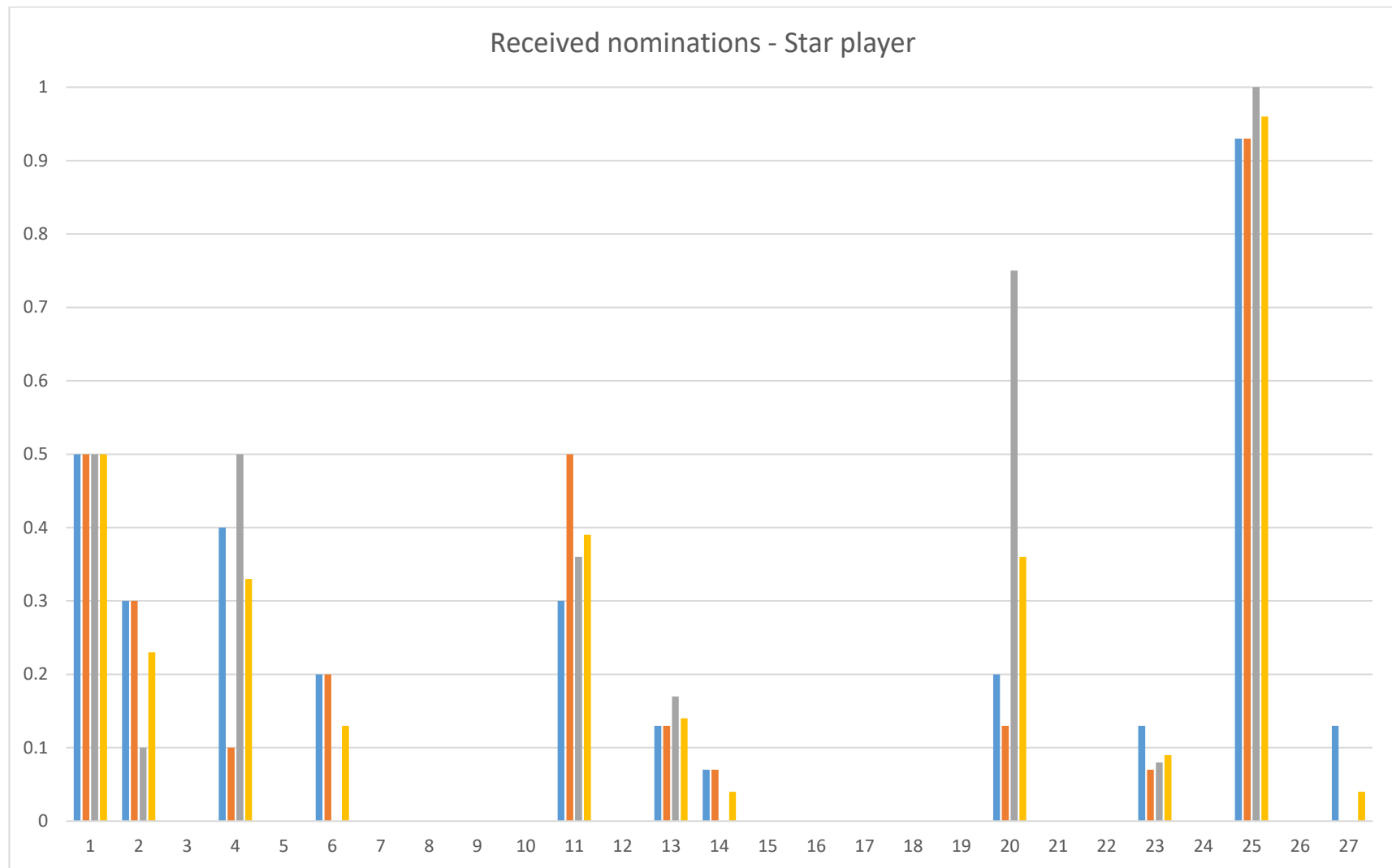


**Supplemental Material (Project Three) 6.** Verbal Informal Leader Role Occupancy Summary. For each athlete, the bars represent (from left to right) nominations at time 2, time 3, time 3, and overall mean across timepoints. Participant #1, #2, #4, #13, #23, and #27 appear to occupy the verbal informal leader role.

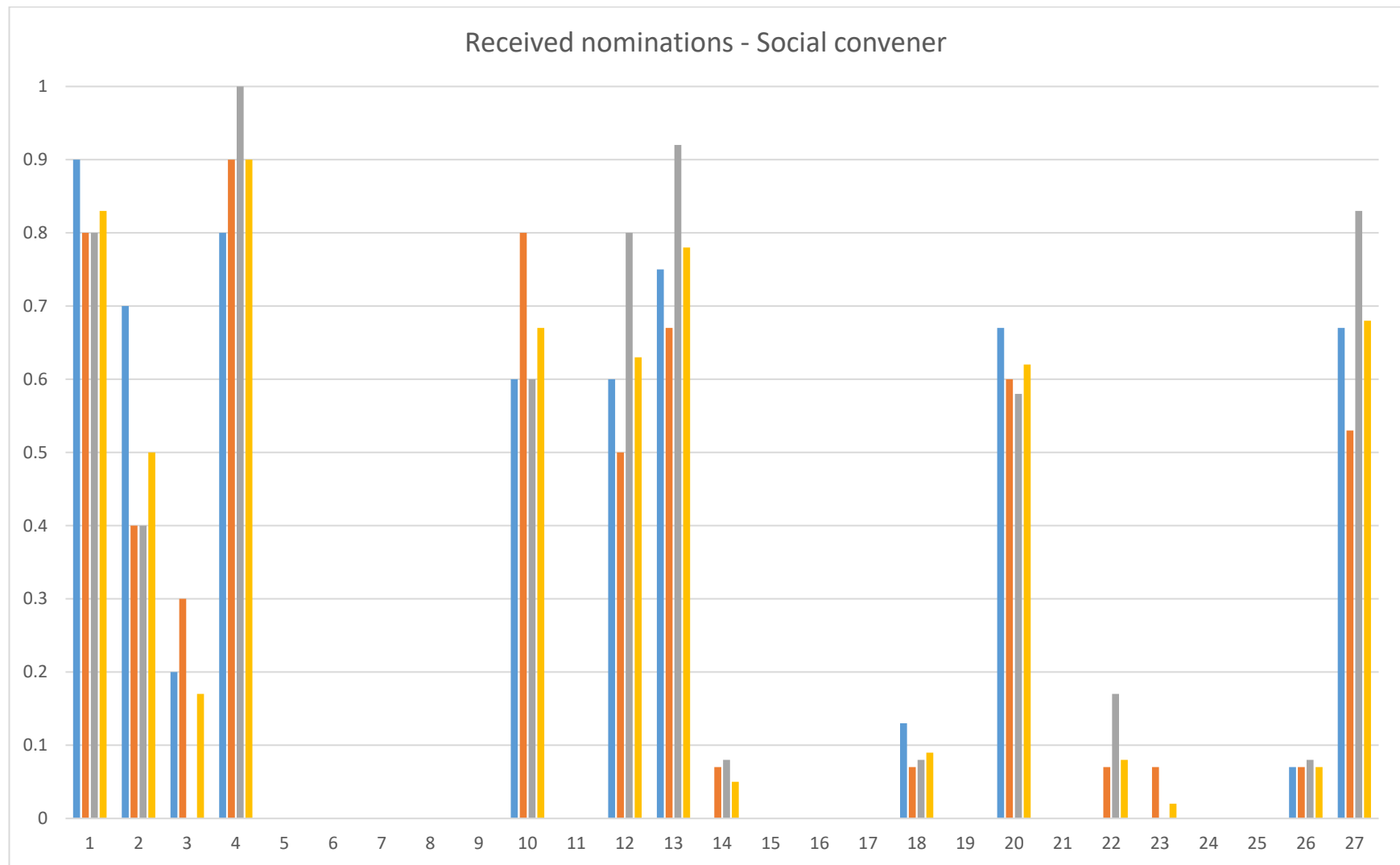


**Supplemental Material (Project Three) 7. Team Player Role Occupancy Summary.** For each athlete, the bars represent (from left to right) nominations at time 2, time 3, time 3, and overall mean across timepoints. The number of nominations for the team player is noticeably higher compared to other roles, which may suggest that the athletes perceived team player-like behaviours (e.g., putting team's interests before individual interests) as the group's norm instead of specific role behaviours. Thus, athletes' occupancy of this role was determined based on a much higher criterion. Accordingly, participant #1, #2, #15, and #17 were considered as team players.

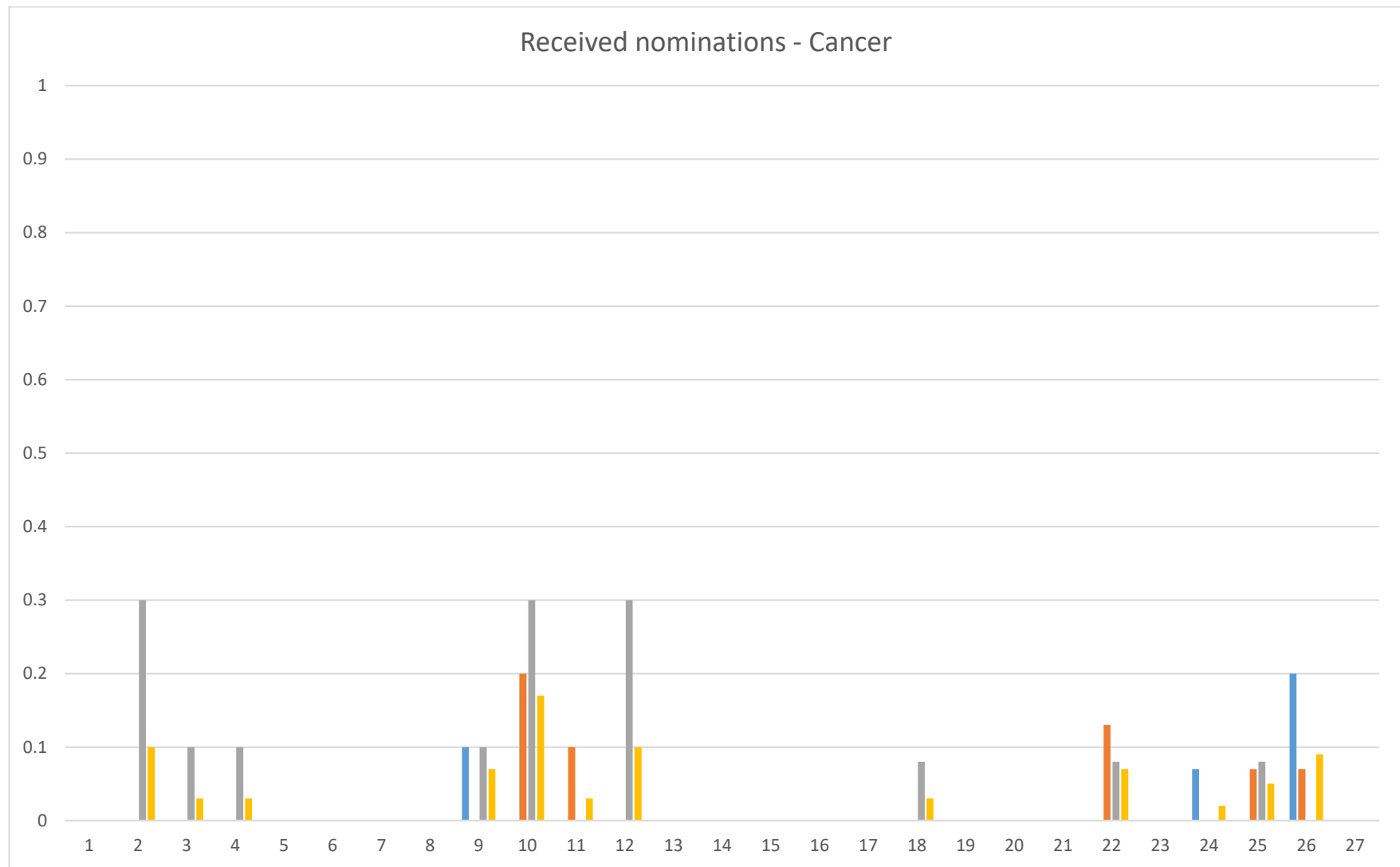




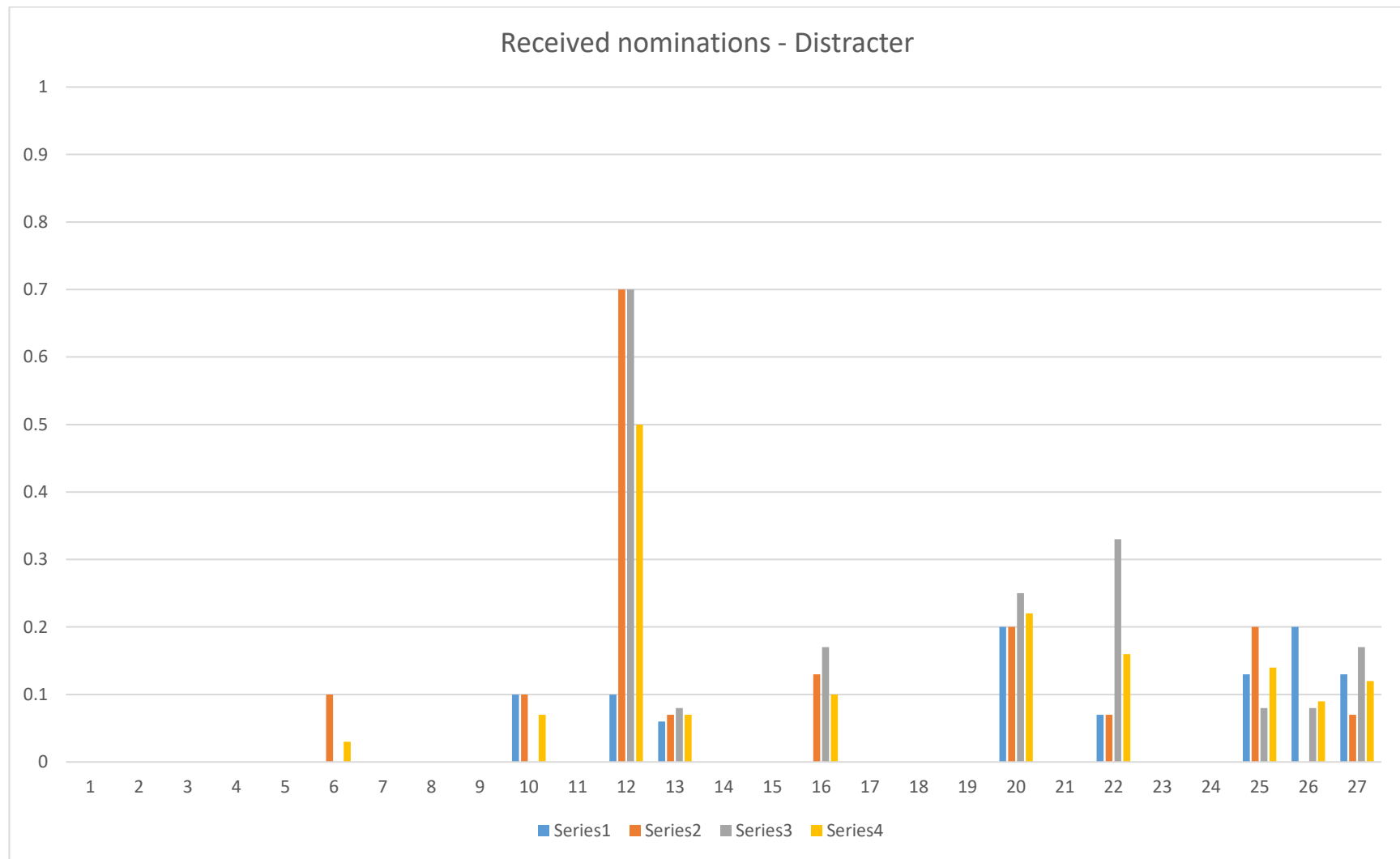
**Supplemental Material (Project Three) 8. Star Player Role Occupancy Summary.** For each athlete, the bars represent (from left to right) nominations at time 2, time 3, time 3, and overall mean across timepoints. Participant #1, #4, #11, #20, and #25 appear to occupy the star player role.



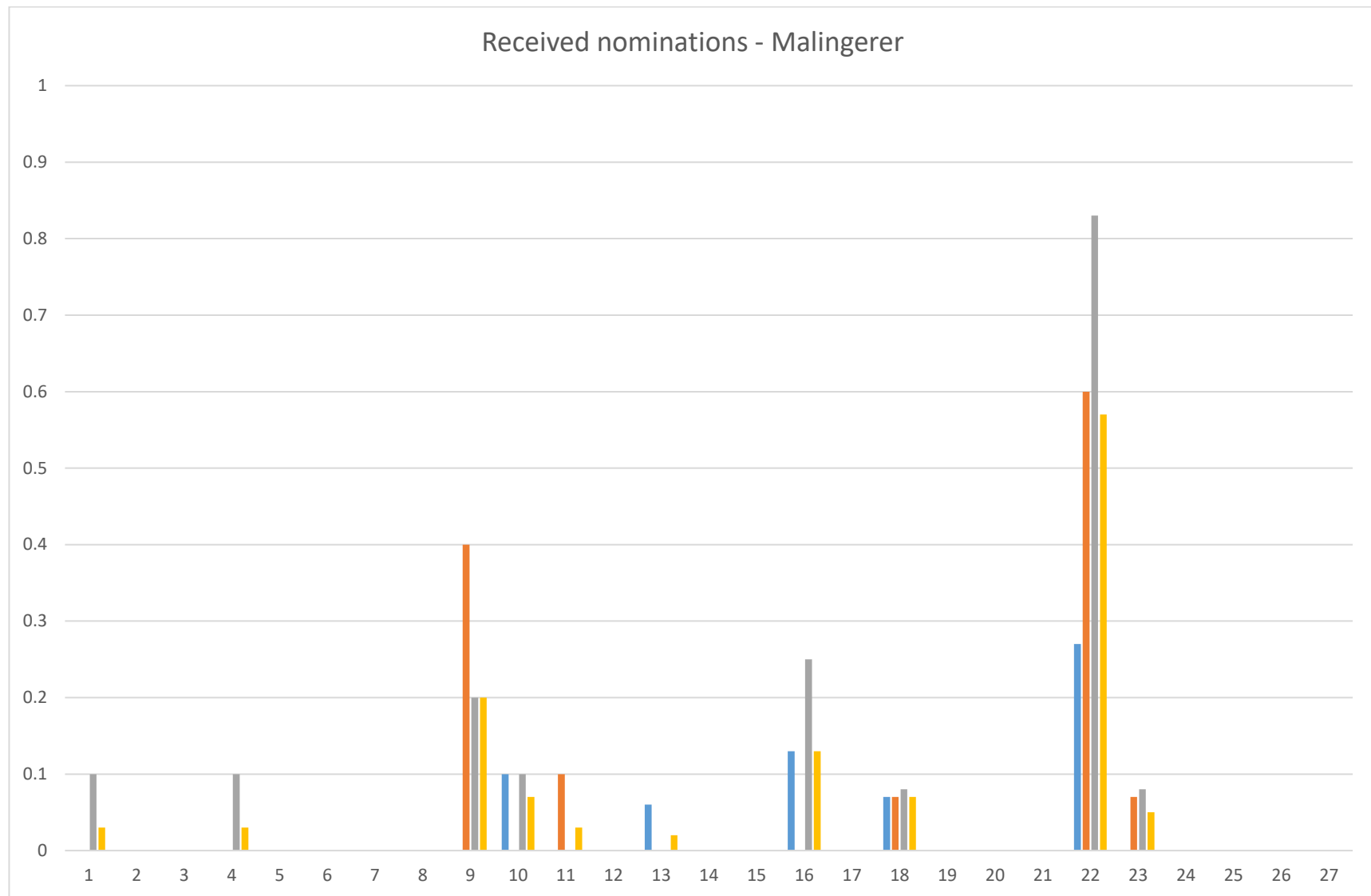
**Supplemental Material (Project Three) 9. Social Convener Role Occupancy Summary.** For each athlete, the bars represent (from left to right) nominations at time 2, time 3, time 3, and overall mean across timepoints. Participant #1, #2, #4, #10, #12, #13, #20, and #27 appear to occupy the social convener role.



**Supplemental Material (Project Three) 10.** Cancer Role Occupancy Summary. For each athlete, the bars represent (from left to right) nominations at time 2, time 3, time 3, and overall mean across timepoints. No athlete appears to have garnered significant numbers of nominations.



**Supplemental Material (Project Three) 11.** Distracter Role Occupancy Summary. For each athlete, the bars represent (from left to right) nominations at time 2, time 3, time 3, and overall mean across timepoints. Participant #12 appears to occupy the distracter role.



**Supplemental Material (Project Three) 12.** Malingerer Role Occupancy Summary. For each athlete, the bars represent (from left to right) nominations at time 2, time 3, time 3, and overall mean across timepoints. Participant #22 appears to occupy the malingerer role.

**Participant ##. “Great people”:** Comedian, Enforcer, Mentor, Verbal leader, Social convener

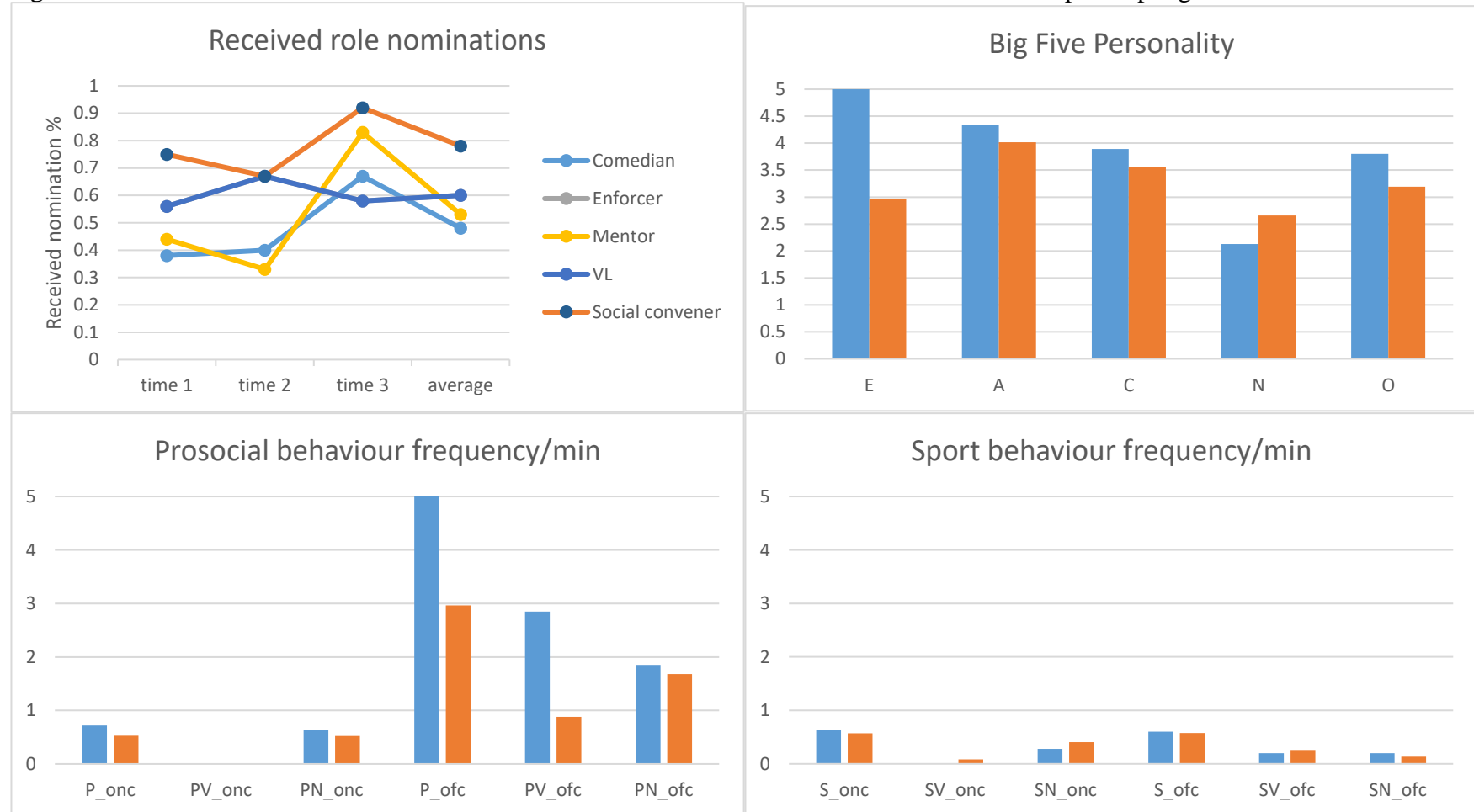
Age: 21

Position: Forward

Tenure: 2

Status: Starter

22.0 minutes and 13.8 points per game



**Supplemental Material (Project Three) 13. Role Profile Example.** E = Extraversion, A = Agreeableness, C = Conscientiousness, N = Neuroticism, O = Openness. P = prosocial (verbal and nonverbal), PV = prosocial-verbal, PN = prosocial-nonverbal, S = sport (verbal and nonverbal), SV = sport-verbal, SN = sport-nonverbal, onc = on-court, ofc = off-court. For each set of bars, the left represents the athlete, the right represents the mean for other members.