Role Ambiguity, Role Efficacy, and Role Performance: Multidimensional and Mediational Relationships Within Interdependent Sport Teams

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Male secondary school rugby players ($N = 271$) participated in a study examining role ambiguity, role efficacy, and role performance. A multidimensional measure was used to assess 4 manifestations of role ambiguity in offensive and defensive contexts. Multiple role ambiguity dimensions explained variance in efficacy and performance. Consistent with theorizing by A. Bandura (1997) and R. L. Kahn, D. M. Wolfe, R. P. Quinn, J. D. Snoek, and R. A. Rosenthal (1964), negative relationships observed between role ambiguity and role performance were mediated by competence (role efficacy) beliefs. Findings support the multidimensional operationalization of role ambiguity and role efficacy as a generative mechanism through which role ambiguity can affect role performance.

Role ambiguity refers to a lack of clear information associated with a particular role (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). A large body of research evidence indicates role ambiguity may have problematic consequences for role occupants. For example, within the organizational domain, research has found role ambiguity to be consistently associated with negative affect (e.g., Lagace, 1988; Terry, Nielsen, & Perchard, 1993) and impaired performance (e.g., Bauer & Green, 1994; Sohi, Smith, & Ford, 1996; Szigáty, Williams, Podsakoff, & Huber, 1992) among employees.

Although role ambiguity has been associated with various negative outcomes within organizations, Kahn et al. (1964) theorized that it should be particularly dysfunctional in situations where individual roles are characterized by a high degree of interdependence. That is, when role occupants’ responsibilities are interwoven with those of other individuals in an organizational system, the impact of role ambiguity on the role occupant personally should be more problematic compared with when role occupants function more or less independently of others. Furthermore, in situations characterized by interdependence of roles, ambiguity could be predicted to influence the thoughts and behaviors of both the role occupant and the other individuals (e.g., group members) with whom he or she interacts (Forsyth, 1999). Indeed, Kahn et al. (1964) provided an illustration of this point in their role episode model when they observed that “change in any one part of the [role] system creates changes in other parts as well . . . ambiguity in many parts of the organization are almost inevitably the outcome” (pp. 76–77).

It is interesting to note that despite the fact that research has focused extensively on role ambiguity and its correlates within generic work roles (e.g., Berkowitz, 1980; Organ & Green, 1981) few studies have examined role ambiguity within the interdependent group con-
text. Given the pervasiveness of groups that have task interdependence as a fundamental feature (e.g., projects teams, service groups, and sport teams), research aimed at examining the extent to which role ambiguity perceptions affect role occupants’ cognitions and behaviors is particularly salient. Thus, one general focus of our study was to examine role ambiguity and cognitive and behavioral correlates within interdependent teams. A second general focus was to establish a conceptually sound protocol for assessing role ambiguity. Insofar as this second purpose is concerned, the present study builds on recent efforts to examine role ambiguity in sport teams.

In one study, Beauchamp and Bray (2001) examined role ambiguity as well as role conflict perceptions among elite university athletes from a cross-section of interdependent team sports (e.g., basketball, rugby, and soccer). Results indicated that athletes who reported greater levels of role ambiguity and role conflict had lower levels of efficacy with regard to performing their primary role responsibilities. Furthermore, consistent with theorizing by Kahn et al. (1964), the relationship between role conflict and role efficacy was mediated by role ambiguity.

In another study, Eys and Carron (2001) investigated the relationship between role ambiguity and both task cohesion and task self-efficacy within six university basketball teams. It was found that individuals who were unclear about their role responsibilities perceived their team to be less integrated in terms of its task approach to team play and reported lower levels of attraction to the team. In addition, consistent with the findings of Beauchamp and Bray (2001), individuals who reported greater ambiguity were less efficacious about performing tasks associated with their responsibilities on the team.

In addition to identifying important correlates of role ambiguity, the Beauchamp and Bray (2001) and Eys and Carron (2001) studies also made a potentially important contribution to the study of the construct through the operational definitions they used. Despite theoretical arguments that role ambiguity should be conceptualized and measured multidimensionally (Kahn et al., 1964; King & King, 1990), researchers have traditionally assessed it as a unidimensional construct (e.g., Rizzo, House, & Lirtzman, 1970). A unidimensional approach to measuring role ambiguity is not only inconsistent with theory, it has minimal utility in terms of its potential application. For example, King and King (1990) criticized unidimensional approaches to measurement on the grounds that they elicit little knowledge about the myriad types of ambiguity role occupants might experience and that they provide limited information to help guide intervention.

Although Beauchamp and Bray (2001) and Eys and Carron (2001) both assessed role ambiguity as a multidimensional construct, two markedly different approaches were taken. Beauchamp and Bray, using the work of Rhoads, Singh, and Goodell (1994) and Singh (1993) as their basis, measured role ambiguity in terms of the major behavioral contexts in which sport team members have formal role-related responsibilities. In sports, the major contexts are related to offense and defense. Beauchamp and Bray’s results supported their proposition that these two contexts formed definite distinguishable dimensions of team play for each team member, as role ambiguity perceptions were found to differentiate across contexts.

In contrast, Eys and Carron (2001), using the Kahn et al. (1964) theoretical model as their basis, operationalized role ambiguity as a multidimensional construct composed of ambiguity about (a) the scope of responsibilities, (b) the behaviors necessary to carry out those responsibilities, (c) how role responsibilities are evaluated, and (d) the consequences of not fulfilling role responsibilities. Consistent with theory, their results showed differential patterns of prediction across the various forms of ambiguity relating to task cohesion as well as task self-efficacy.

In combination, the findings of Beauchamp and Bray (2001) and Eys and Carron (2001) provide initial support for the multidimensionality of role ambiguity within the interdependent sport team context. However, limitations and strengths to both approaches should be noted. One limitation of the Beauchamp and Bray measure is that it did not represent multidimensional role ambiguity as theorized by Kahn et al. (1964). In short, although multidimensionality was supported, their approach lacked the theory that provided the basis for the Eys and Carron approach. Conversely, a limitation of the Eys and Carron measure was that it
failed to differentiate among the various contexts (i.e., offense and defense) in which the four manifestations of role ambiguity (i.e., scope of responsibilities, etc.) might be experienced. Specifically, in the Eys and Carron measure, questions in the scales representing each of the four manifestations of ambiguity focused on 10 broad contexts that included members’ offensive responsibilities, defensive responsibilities, leadership responsibilities, and responsibilities to organize functions for teammates. With such an approach, there is a risk that important information will be overlooked. For example, an individual may be quite clear about his or her scope of responsibilities for offense but be unclear about his or her responsibilities for team leadership, defense, and so forth. As a consequence, the average score reflecting scope of responsibilities would not capture the differences in ambiguity across different contexts.

Given the limitations associated with both approaches, it is clear that neither the Beauchamp and Bray (2001) nor the Eys and Carron (2001) measure is fully satisfactory. However, the two approaches are highly complementary, and their strengths should also be highlighted. Specifically, Beauchamp and Bray provided a measure that taps the two major contexts in which all interdependent sport team members have formal roles, namely offense and defense. The Eys and Carron approach, on the other hand, taps four theory-driven dimensions across which role ambiguity can be manifested. Thus, in the present study a preliminary attempt was made to develop a multidimensional measure of role ambiguity that combined the strengths of both approaches.

To guide the instrument development process, we considered four fundamental role-related issues. First, role ambiguity was theorized to encompass both subjective and objective components (Kahn et al., 1964). However, consistent with the majority of published role ambiguity research (cf. Van Sell, Brief, & Schuler, 1981), our attempt to assess role ambiguity was limited to subjective ambiguity (i.e., the perception of role ambiguity held by a particular person).

Second, roles can also be formal or informal (Mabry & Barnes, 1980). Informal roles develop through processes of interpersonal interaction within the group. They can include roles such as team clown, social facilitator, or motivator (Carron & Hausenblas, 1998). Formal roles are directly prescribed to group members, which in the sport team setting encompass specific task-related behaviors determined by the team’s coach (Bray, 1998; Carron & Hausenblas, 1998). Because formal roles dictate the task-related responsibilities that are directly associated with task performance (e.g., mastery of specific maneuvers), only formal roles were assessed.

Third, different types of formal roles may exist (e.g., offense, defense, and leadership). However, as offense and defense form the major behavioral contexts in which all members of interdependent sport teams have formal roles, we limited our measure to these two specific contexts. That is, we did not seek to assess formal roles associated with group-related responsibilities such as leadership (e.g., team captain) or social organization (e.g., team social secretary).

Finally, the measure focused on the four manifestations of ambiguity identified by Eys and Carron (2001): scope of responsibilities, role behaviors, role evaluation, and role consequences. Scope of responsibilities refers to a lack of clear information about the breadth of one’s responsibilities. Role behaviors refer to a lack of clear information about the behaviors associated with one’s role. Role evaluation refers to a lack of clear information about how one’s responsibilities are evaluated. Role consequences refer to a lack of clear information about the consequences of a failure to fulfill one’s role responsibilities.

The general purpose of the present study was to examine correlates of role involvement in a team sport characterized by a high degree of interdependence (i.e., rugby). Strong theoretical and empirical bases led us to focus on four specific questions. The first pertained to the relationship between role ambiguity (using a measure of the construct that was based on the conceptual framework outlined above) and role performance effectiveness. Previous meta-analyses within the organizational domain (e.g., Abramis, 1994; Fisher & Gitelson, 1983; Jackson & Schuler, 1985) have found role ambiguity to be negatively associated with performance. However, in a more recent meta-analysis conducted by Tubre and Collins (2000), the negative relationship between role ambiguity and
performance was found to be more pronounced (i.e., a larger effect size was found) among individuals whose roles were characterized by a high degree of interdependence compared with those whose role requirements were carried out independently of others. Team sports such as rugby involve dynamic team play in which member roles are highly interdependent. Thus, it was hypothesized that role performance would be negatively associated with role ambiguity.

The second research question concerned the relationship between role ambiguity and role efficacy. Role efficacy refers to a specific form of self-efficacy relating to a team member’s confidence in his or her capabilities to carry out interdependent role functions (Bray, 1998; Bray & Brawley, 2000). According to self-efficacy theory (Bandura, 1997), information derived enactively, vicariously, persuasively, or physiologically is processed to develop beliefs of personal efficacy. If an individual perceives a lack of clear information in terms of what is expected of him or her in order to effectively carry out his or her role responsibilities, personal efficacy related to these role behaviors is likely to suffer (Bandura, 1997; Kahn et al., 1964). This proposition has been supported by the findings of both Beauchamp and Bray (2001) and Eys and Carron (2001). Thus, it was hypothesized that role ambiguity would be negatively associated with role efficacy.

The first two research questions acknowledge the potential relationships between role ambiguity and both role performance and efficacy, respectively. The third research question involved an examination of the relationship between the latter two constructs. According to self-efficacy theory (Bandura, 1997), decrements in personal efficacy are likely to be predictive of decrements in performance. In their recent review of the efficacy literature in sports, Feltz and Chase (1998) found support for this proposition in that higher self-efficacy was consistently associated with more positive performance. Thus, it was hypothesized that role efficacy would be positively associated with role performance in the present study.

Drawing from theory (Bandura, 1997; Kahn et al., 1964), the bivariate interrelationships proposed between role ambiguity, role performance, and role efficacy led to an additional research question, namely, the triadic interrelationships among the three constructs. Jackson and Schuler (1985) theorized that role ambiguity affects performance via the weakening of motivation in terms of both effort-to-performance and performance-to-reward expectancies. According to Bandura (1997), efficacy expectations are motivational. Thus, role efficacy represents a cognitive mechanism that may account for the relationship between role ambiguity and role performance. Consistent with this reasoning, we hypothesized that the relationship between role ambiguity and role performance would be mediated by role efficacy.

Method

Participants

Male secondary school rugby players (mean age = 15.38 years, \(SD = 1.56\); \(N = 271\)) representing 17 teams and head coaches representing 12 of those teams participated in the study. Athletes had an average of 5.26 years’ (\(SD = 2.38\)) playing experience in competitive rugby. The level of competition represented in the sample was of a high standard, with many athletes having played for county or divisional representative teams. For example, as part of their regular team engagement, participants took part in structured practices 3–5 times per week.

Measures

Identification of primary role responsibilities. In order to have players focus on their primary role responsibilities for offense and defense, we used a three-stage process developed by Bray and colleagues (Beauchamp & Bray, 2001; Bray, 1998; Bray & Brawley, 2002). First, players were provided with a specific definition of roles and were required to focus on their overall role on their team. Second, players were asked to differentiate specific offensive and defensive role responsibilities within their overall role. Instructions made clear that one’s overall role could be made up of several interdependent responsibilities for offense and defense. Examples of specific role responsibilities from rugby were also provided—breaking the gain line off set-piece plays, closing down space between myself and my opponent and putting in a strong tackle, et cetera. Finally, players were required
to provide written descriptions of their four primary interdependent role responsibilities for offense and defense, separately.

**Role ambiguity.** Using their primary offensive and defensive role responsibilities as frames of reference, athletes responded to a battery of questions regarding the degree to which they perceived that their responsibilities were ambiguous. Role ambiguity was assessed using two 20-item scales (i.e., one for offense and one for defense) designed to assess the degree of ambiguity and lack of clarity associated with (a) the scope of personal responsibilities (5 items), (b) the behaviors necessary to carry out those responsibilities (5 items), (c) how performance associated with those responsibilities is evaluated (5 items), and (d) the consequences of a failure to successfully carry out those responsibilities (5 items).

Content validity of each of these scales was assessed ad hoc through a three-stage process. First, on the basis of conceptual definitions provided by theory (Kahn et al., 1964), items were developed that were believed to represent the four manifestations of ambiguity identified by Eys and Carron (2001). Second, elite athletes \( n = 9 \), recreational athletes \( n = 6 \), and experienced coaches \( n = 4 \) from a variety of interdependent sport teams reviewed and provided feedback on the items, in terms of both wording and content. Any items deemed awkwardly worded were rephrased. Any items that held little meaning for the athletes were reworded or removed.

In Stage 3, the resulting pool of items was submitted to five experts in the field of group dynamics to further assess content validity. Consistent with procedures outlined by Estabrooks and Carron (2000), the following criteria were used to incorporate the feedback from the group dynamics experts. Items were reworded or eliminated if they were judged not to reflect the intended role ambiguity dimension. Items judged to be awkwardly worded were removed from the content pool. Items considered to possess jargon or complex terminology were eliminated. Finally, items considered to be almost identical in content were removed. The final scales are presented in the Appendix.

Athletes rated their agreement with each role ambiguity statement on a 9-point Likert-type scale anchored by 1 (strongly disagree) and 9 (strongly agree). Thus, higher scores reflected greater clarity (i.e., lower ambiguity) and lower scores reflected greater ambiguity (i.e., lower clarity). Acceptable internal consistencies (Cronbach’s alpha) of greater than .78 were recorded for each of the role ambiguity scales (Nunnally, 1978). Internal consistencies for each of the role ambiguity scales are reported in Table 1.

**Role efficacy.** Role efficacy was assessed using procedures outlined by Bray and colleagues (Beauchamp & Bray, 2001; Bray, 1998; Bray & Brawley, 2002). For each of the four offensive and four defensive primary role responsibilities identified in the role identification

<table>
<thead>
<tr>
<th>Context and variable</th>
<th>( M )</th>
<th>( SD )</th>
<th>Range</th>
<th>( \alpha )</th>
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<tr>
<td><strong>Offense</strong></td>
<td></td>
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<tr>
<td>Scope of responsibilities</td>
<td>6.95</td>
<td>1.20</td>
<td>3.00–9.00</td>
<td>.79</td>
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<td>Behavior</td>
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<td>1.27</td>
<td>1.40–9.00</td>
<td>.83</td>
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<td>6.50</td>
<td>1.52</td>
<td>1.80–9.00</td>
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<td>1.23</td>
<td>2.00–9.00</td>
<td>.81</td>
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<tr>
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<td>73.50</td>
<td>14.54</td>
<td>10.00–100.00</td>
<td></td>
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<tr>
<td>Role performance effectiveness</td>
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<td>1.25</td>
<td>3.50–10.00</td>
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<td><strong>Defense</strong></td>
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<tr>
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<td>1.28</td>
<td>2.60–9.00</td>
<td>.85</td>
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<td>.87</td>
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<td>1.34</td>
<td>1.20–9.00</td>
<td>.85</td>
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<td>16.56</td>
<td>10.00–100.00</td>
<td></td>
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<td>Role performance effectiveness</td>
<td>6.68</td>
<td>1.34</td>
<td>3.50–10.00</td>
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</table>
process, athletes rated their confidence in their ability to perform that responsibility. Responses were provided using a 0% (not at all confident) to 100% (extremely confident) scale. The mean score from each athlete’s (a) four-item defensive role responsibility scale and (b) four-item offensive role responsibility scale formed the defensive role efficacy and offensive role efficacy scores, respectively. Intraclass correlations of .76 and .78 were obtained for the offensive role efficacy and defensive role efficacy scales. These correlations indicate a high degree of within-subject consistency, thus giving support for item aggregation.

**Role performance effectiveness.** The head coaches from 12 of the 17 participating teams (not all coaches participated) identified the four primary role responsibilities that they expected each of their athletes to perform for offense and defense, separately. Once these role responsibilities were identified, the coaches rated how well each athlete was performing with regard to each of these responsibilities at that stage in the season. Responses were provided on an 11-point scale anchored by 0 (very ineffective) and 10 (very effective). Offensive and defensive role performance effectiveness scores were calculated from the means of the four defensive items and four offensive items, respectively. Intraclass correlations of .85 and .85 were recorded for the offensive and defensive rating scales, indicating a high degree of internal consistency among the respective offensive and defensive item response sets.

**Procedure**

Participants were recruited by Mark R. Beauchamp through initial contact with each team’s head coach. To provide time for players’ formal interdependent role responsibilities to become established, we administered the questionnaires approximately 1 month into the competitive season during a 1-week period. Questionnaires were completed at a team meeting that was neither immediately before nor immediately after competition in order to avoid competition-specific bias. The athletes were informed of the voluntary nature of the study and were assured of confidentiality, and both parental and participant consent was obtained. Coach ratings of performance were obtained during the same week, again at a time that was neither immediately prior to nor immediately following competition.

**Results**

**Confirmatory Factor Analyses**

Given that a newly developed inventory was used to measure the four hypothesized dimensions of role ambiguity, we conducted two confirmatory factor analyses for both offense and defense to ensure that the items loaded on each of the four factors as expected. In the present study, a maximum likelihood method of estimation was computed using AMOS (Version 4.0) software (Arbuckle, 1999). As recommended by Hu and Bentler (1995), several fit indices were used to assess model fit. First, the chi-square test was considered. A nonsignificant chi-square is typically representative of a good fitting model. For both offensive and defensive models, the chi-square statistic was significant: offense, \( \chi^2(164, N = 271) = 420.91, p < .001 \); defense, \( \chi^2(164, N = 271) = 347.42, p < .001 \). However, numerous authors have suggested that a nonsignificant chi-square result is unrealistic (e.g., Bentler & Bonett, 1980; Jöreskog, 1969) and consider the ratio between the chi-square and the degrees of freedom to be a more appropriate measure of model fit. Carmines and McIver (1981) indicated that “ratios in the range of 2 to 1 or 3 to 1 are indicative of an acceptable fit between the hypothetical model and the sample data” (p. 80). In the present study, the ratios obtained for both offensive \( (\chi^2/df = 2.57) \) and defensive \( (\chi^2/df = 2.12) \) data indicated acceptable model fit of less than 3 to 1.

In addition to the chi-square, several other indices were used to assess model fit, including the standardized root-mean-square residual (SRMR), the comparative fit index (CFI), the Tucker–Lewis index (TLI), and the root-mean-square error of approximation (RMSEA). Results of both the offensive (SRMR = .06; CFI = .92; TLI = .91; RMSEA = .08) and defensive (SRMR = .04; CFI = .95; TLI = .95; RMSEA = .06) models showed that the four-factor solution provided an adequate fit to the data. Collectively, these results indicate that the role ambiguity instrument used in this study is a good measure of the four hypothesized ambiguity manifestations. However, it should be noted that these results are restricted to the present
sample. Consequently, future research should examine the construct validity of the instrument with participants from other sports, performance levels, and age groups (cf. Carron & Brawley, 2000).

**Descriptive Statistics**

Descriptive statistics are presented in Table 1. For both offense and defense, relatively high mean scores were observed for all role ambiguity dimensions (note that higher scores reflect greater clarity and less ambiguity). The participants also reported relatively high levels of role efficacy for both offense ($M = 73.50$, $SD = 14.54$) and defense ($M = 71.43$, $SD = 16.56$). In addition, coach ratings revealed that the athletes sampled were achieving a moderately high level of success in performing both their offensive ($M = 6.97$, $SD = 1.25$) and defensive ($M = 6.68$, $SD = 1.34$) role responsibilities.

Bivariate correlations between the variables are presented in Table 2. The correlations showed a general trend toward higher levels of role clarity (i.e., lower role ambiguity) being associated with higher role efficacy scores (e.g., $r = .54$ for the relationship between offensive scope of responsibilities and offensive role efficacy) and higher role performance effectiveness scores (e.g., $r = .44$ for the relationship between offensive scope of responsibilities and offensive role performance).

**Relationships Between Role Ambiguity and Role Efficacy**

To determine the relationship between role ambiguity and role efficacy, role efficacy was regressed on the four role ambiguity dimensions (Table 3). Separate multiple regression analyses were carried out for the two contexts (i.e., offense and defense). Assessment of both the variance inflation factors and the tolerance statistics (Hair, Anderson, Tatham, & Black, 1998) revealed that multicollinearity was not at a level to evoke concern (i.e., collinearity did not explain more than 10% of the variance in any independent variable).

For offense, ambiguity related to scope of responsibilities was the primary predictor of variance in role efficacy ($\beta = .43$, $p < .001$).
Role evaluation ambiguity was also significantly related to role efficacy in the model ($\beta = .21, p < .01$). The full model accounted for 30% of the variance in offensive role efficacy (adjusted $R^2 = .30$), $F(4, 264) = 29.59, p < .001$.

A similar pattern of findings was obtained in the defensive analysis. That is, ambiguity associated with scope of responsibilities was the major predictor of role efficacy ($\beta = .30, p < .01$). However, in this analysis, role behavior ambiguity also contributed to the explained variance ($\beta = .22, p < .05$). The full model accounted for 34% of the variance in defensive role efficacy (adjusted $R^2 = .34$), $F(4, 262) = 35.83, p < .001$.

### Relationship Between Role Ambiguity and Role Performance Effectiveness

Although 271 athletes completed their questionnaires, 5 of the 17 teams’ head coaches were either unable (2 were absent from school for 2 weeks because of illness) or chose not ($n = 3$) to provide ratings on role performance for their athletes (coach participation was voluntary). As a consequence, coach ratings of role performance were obtained for a subsample of the athletes ($n = 135$).

As was the case for the role efficacy analyses, ratings of role performance were regressed on the four role ambiguity dimensions in separate multiple regression analyses for offense and defense (Table 4). For offense, ambiguity related to scope of responsibilities was the principal predictor of role performance ($\beta = .41, p < .001$), although role consequences ambiguity also accounted for significant variance ($\beta = -.20, p < .05$) in offensive role performance. The full model accounted for 20% of the explained variance (adjusted $R^2 = .20$), $F(4, 130) = 9.55, p < .001$. In the defensive analysis, ambiguity related to scope of responsibilities was the only significant predictor of role performance effectiveness ($\beta = .30$, adjusted $R^2 = .05$), $F(4, 130) = 2.63, p < .05$.

### Relationship Between Role Efficacy and Role Performance Effectiveness

To examine the relationship between role efficacy and role performance, role performance was regressed on role efficacy for both offense
and defense. For offensive role performance, role efficacy accounted for 15% of the variance (adjusted $R^2 = .15$), $F(1, 133) = 24.44, p < .001$, whereas for defensive role performance, role efficacy accounted for 13% of the variance (adjusted $R^2 = .13$), $F(1, 131) = 20.53, p < .001$.

Role Efficacy as a Mediator in the Role Ambiguity–Role Performance Relationship

In accordance with Baron and Kenny’s (1986) prescription for testing mediation, linear regression analyses were conducted to examine role efficacy as a mediator of the relationship between role ambiguity and performance. As was the case above, separate analyses were conducted for offense and defense. Baron and Kenny suggested that first, the mediator should be regressed on the independent variable; second, the dependent variable should be regressed on the independent variable; and third, the dependent variable should be hierarchically regressed on the mediator and then the independent variable.

Results of the defensive analyses are presented in Table 5. In the first equation, role ambiguity accounted for significant variance (adjusted $R^2 = .22, p < .001$) in role efficacy. In the second equation, role ambiguity accounted for significant variance (adjusted $R^2 = .05, p < .05$) in performance. Results of the third equation revealed that role efficacy accounted for 13% of the variance ($p < .001$) in role performance. However, role ambiguity did not account for significant additional variance ($p > .05$) in role performance beyond that accounted for by role efficacy.

Results of the offensive analyses are also presented in Table 5. In the first equation, role ambiguity accounted for significant variance (adjusted $R^2 = .31, p < .001$) in role efficacy. In the second equation, role ambiguity accounted for significant variance (adjusted $R^2 = .20, p < .001$) in role performance. In the third equation, role efficacy explained 15% of the variance ($p < .001$) in role performance. After controlling for the effect of role efficacy, role ambiguity also contributed an additional 8% of the explained variance ($p < .001$) in role performance. Thus, in both offensive and defensive analyses, mediation was supported—the relationships between role ambiguity and role per-
formance were reduced substantially when the effects of the mediator (role efficacy) were controlled (Baron & Kenny, 1986).

Discussion

The overall objective of this study was to examine the relationships among role ambiguity, role-related efficacy, and role performance within an interdependent sport team setting. A multidimensional, theoretically derived (cf. Kahn et al., 1964) measure was developed to assess four different manifestations of role ambiguity—scope of responsibilities, role behaviors, role evaluation, and role consequences—within two specific contexts: offense and defense. Furthermore, a mediational model was proposed to test the assertion that role efficacy beliefs are a mechanism through which role ambiguity influences role performance.

Theorizing by Kahn et al. (1964) and research from the organizational domain (Tubre & Collins, 2000) contribute to the suggestion that ambiguity should be particularly detrimental to performance in situations where an individual’s role is characterized by high interdependence. Although previous research has examined ambiguity within generic work roles (e.g., managerial, administrative), our study represents a first step toward investigating the relationship between role ambiguity and performance within the context of interdependent sport teams.

Consistent with our hypotheses, role ambiguity was found to be negatively associated with role performance. That is, for both offense and defense, higher ambiguity scores were associated with lower coach ratings of athlete performance. Ambiguity associated with scope of responsibilities was the major predictor of offensive and defensive role performance, although ambiguity related to role consequences also accounted for significant variance in offensive role performance. A possible explanation for the fact that ambiguity related to scope of responsibilities was the principal predictor of role performance for both offense and defense might be that when individuals are unclear about their various responsibilities, they may engage in inappropriate task-related strategies. In fact, ambiguity concerning scope of responsibilities can even have a detrimental effect on individuals capable of efficient role performance. As Jackson and Schuler (1985) noted, regardless of effort expenditure, the behaviors of such individuals “are most likely to be inefficient, misdirected or insufficient” (p. 43).

Ambiguity concerning scope of responsibilities was also the major predictor of role efficacy for both offense and defense. Of interest, Eys and Carron (2001) found that scope of responsibilities was predictive of task self-efficacy for defensive role responsibilities among a sample of elite university basketball players. However, our results showed that in addition to ambiguity related to scope of responsibilities, two further

<table>
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<th>Table 5</th>
<th>Meditational Analyses for Variables Predicting Offensive and Defensive Role Performance Effectiveness</th>
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<tr>
<td>Equation</td>
<td>Criterion</td>
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<tr>
<td><strong>Defense</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Role efficacy</td>
</tr>
<tr>
<td>2</td>
<td>Role performance</td>
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<tr>
<td>3</td>
<td>Role performance</td>
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</table>

| **Offense** | | | | | |
| 1 | Role efficacy | Role ambiguity (complete model) | 15.87 | (4, 130) | .31*** |
| 2 | Role performance | Role ambiguity (complete model) | 9.55 | (4, 130) | .20*** |

Note. N = 135. For Equation 3 of the defensive model, Step 2 $\Delta R^2 = .00$. For Equation 3 of the offensive model, Step 2 $\Delta R^2 = .08$.

* p < .05. *** p < .001.
manifestations of role ambiguity were also predictive of role efficacy. Specifically, for offensive play, role evaluation ambiguity was associated with role efficacy, a finding that is also consistent with Eys and Carron’s. Furthermore, role behavior ambiguity was predictive of role efficacy for defensive responsibilities.

The fact that role evaluation ambiguity was associated with offensive role efficacy and that role behavior ambiguity was associated with defensive role efficacy may help to illustrate how various forms of role ambiguity can be manifested in the differential role requirements placed on members for offense and defense in rugby. For example, Escartí and Guzmán (1999) indicated that effective feedback is essential for the maintenance of personal efficacy. For offensive play, rugby players are required to carry out a number of responsibilities (e.g., set plays and counterattacks). If members are not clear as to how these different responsibilities are evaluated, appropriate feedback necessary to the maintenance of personal efficacy may be absent. Thus, consistent with theory (Bandura, 1997), lower levels of role-related efficacy will be likely. In contrast to offense, when playing defense, rugby players may be required to carry out a smaller spectrum of responsibilities. However, if they are unclear about the behaviors involved in carrying out these responsibilities (e.g., how to tackle), they may doubt their capabilities to carry out those responsibilities (e.g., “The opposition are bound to expose my defensive weaknesses”) and so lower levels of role efficacy will result. When this is considered in concert with the ambiguity–performance findings, it is clear that when individuals fail to understand the breadth of their different role responsibilities, both performance and perceived capabilities to perform suffer.

Previous research from the sport setting has consistently demonstrated a positive relationship between personal efficacy and competitive performance (e.g., George, 1994; Lee, 1982; Treasure, Monson, & Lox, 1996). Although the aforementioned research has focused mainly on individuals performing sport tasks independently and not interdependently with teammates, recent research by Bray and Brawley (2000, 2002) also found a positive relationship between role efficacy and role performance in collegiate basketball. Thus, consistent with theorizing by Bandura (1997) and past research examining the efficacy–performance relationship in both independent and interdependent sport tasks, our results support the hypothesized positive relationship between role efficacy and role performance in an interdependent team setting.

Baron and Kenny (1986) defined a mediator as “the generative mechanism through which the focal independent variable is able to influence the dependent variable of interest” (p. 1173). Although the association between ambiguity and performance has been proposed by theory and supported by empirical research, little effort has been made to account for theorized mediators through which ambiguity may affect performance. The current findings provide evidence of such a mechanism in the form of role efficacy. That is, role efficacy was found to be a mediator of the role ambiguity–performance relationship for both offense and defense. The mediational interpretation of these relationships supports Jackson and Schuler’s (1985) theorizing that role ambiguity seems to have motivational implications for the individual role occupant. Results are consistent with the interpretation that a lack of clarity regarding role responsibilities may be further manifested in beleaguered thoughts about capabilities to perform effectively, which in turn affect performance.

Although role efficacy fully mediated the relationship between role ambiguity and performance for defense (i.e., it accounted for all of the variance in performance), for offense, partial mediation was observed (i.e., role efficacy accounted for some, but not all of the variance in offensive performance previously explained by role ambiguity). Thus, additional mediators may also be present in the latter relationship (Baron & Kenny, 1986). Jackson and Schuler (1985) suggested that role ambiguity may lead to impairments in performance through both cognitive and motivational mechanisms. Future research should explore other possible mechanisms that may explain how role ambiguity affects performance.

Although this study represents a promising start to examining the relationships between multidimensional role ambiguity, role efficacy, and performance within the interdependent sport team context, a number of limitations should be noted. The homogeneous nature of the sample (i.e., male secondary-school rugby
players) means that the results cannot be generalized to other teams, such as university, elite, recreational, or those made up of female athletes. Indeed, future research should seek to examine teams from a variety of sports and levels, as well as female teams. Our role performance measure might also be considered a limitation in that it was operationalized through coaches’ subjective rating of role effectiveness (and, therefore, was subject to bias). One strength, however, was that consistent with the recommendations of Bandura (1997), the measure of performance was intended to represent a high degree of contextual congruence with the specific form of efficacy being assessed. We saw no valid way to assess role performance objectively; this represents a challenge for future researchers. In addition, although the results of this study point toward a potential mechanism (i.e., role efficacy) through which role ambiguity may affect performance, causation cannot be inferred from the concurrent nature of the research design. Indeed, future research should incorporate both experimental and longitudinal designs to test for such causal relationships (Baron & Kenny, 1986).

Balanced against the aforementioned limitations, however, is the fact that the study does make a contribution to theory. That is, support is provided here for a theory-driven multidimensional conceptualization of role ambiguity that allows researchers to tap different types of role ambiguity perceptions held by members of interdependent groups. Furthermore, although a number of studies from the organizational domain have provided evidence for a negative relationship between role ambiguity and performance, our study points toward a mediational mechanism (role efficacy) that may explain how role ambiguity affects performance.

The fact that all four manifestations of ambiguity were predictive of role efficacy and role performance across the different contexts of offense and defense also has practical implications. Group leaders should be made aware of the different types of ambiguity and how they are perceived by interdependent group members. Ensuring that group members understand their scope of responsibilities, how these responsibilities are to be enacted, and how they are to be evaluated, as well as the costs and benefits of unsuccessful and successful role performance, will ensure that efficacy is nurtured and that performance benefits. By failing to do so, group leaders risk that their subordinates will be ill equipped to perform to their best.

Although ambiguity related to scope of responsibilities was the construct most highly associated with impaired performance and lower levels of role efficacy, future research should also examine potential dependent variables that might be associated with the socioemotional aspects of ambiguity. Given the socioemotional nature of both role consequences and role evaluation ambiguity (Kahn et al., 1964), it is possible that these manifestations of ambiguity will significantly influence affective variables such as role satisfaction and role commitment to a greater extent than other forms of ambiguity (e.g., role behaviors). Another important area for future research is the relationship between ambiguity and group (collective) performance. Indeed, if group leaders are particularly poor at conveying to their subordinates what is expected, not only is it likely that group members will be unclear about how to perform specific systems, but collective performances will also be affected.

In conclusion, the present study provides preliminary evidence for the multidimensional conceptualization of role ambiguity used in this study. Furthermore, the results provide evidence for a mechanism (i.e., role efficacy) through which role ambiguity may affect role performance. Future research should continue to use this multidimensional approach to measurement and should seek to examine role ambiguity within interdependent groups across a variety of ages, competitive or organizational levels, and contexts.

References
Bauer, T. N., & Green, S. G. (1994). Effect of newcomer involvement in work-related activities: A
ROLE AMBIGUITY


Appendix

Role Ambiguity Scale

Items were worded with reference to the specific contexts measured (e.g., offense: I understand the scope of my offensive responsibilities). (R) indicates items that were reverse scored.

Ambiguity Related to Scope of Responsibilities
I understand the extent of my responsibilities
I understand the scope of my responsibilities
I understand all of my responsibilities
I am unclear about the breadth of my responsibilities. (R)
I am clear about the different responsibilities that make up my role.

Role Behavior Ambiguity
I understand what adjustments to my behavior need to be made to carry out my role.
I understand the behaviors I must perform to carry out my role.
I know what behaviors are necessary to carry out my responsibilities.
It is clear what behaviors I should perform to fulfill my role.
I am unclear what behaviors are expected of me in order to carry out my role. (R)

Role Evaluation Ambiguity
I understand the criteria by which my role responsibilities are evaluated.
I understand how my role is evaluated.
It is clear to me how my role responsibilities are evaluated
I am unclear about the way in which my offensive role responses are evaluated. (R)
The criteria by which my offensive role is evaluated are clear to me.

Role Consequences Ambiguity
It is clear to me what happens if I fail to carry out my role responsibilities.
I understand the consequences of failing to carry out my role responsibilities.
I am unclear about the consequences of failing to carry out my role responsibilities. (R)
I understand the consequences of unsuccessful role performance.
I know what will happen if I don’t perform my role responsibilities.

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